

The Application of Carousel Feedback and Round Table Cooperative Learning Models to Improve Student's Higher Order Thinking Skills (HOTS) and Social Studies Learning Outcomes

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Abstract

This Classroom Action Research aims to improve students' HOTS (High Order Thinking Skills) and Social Studies learning outcomes through the application of Carousel Feedback and Round Table cooperative learning methods. This study was based on a model proposed by Elliott and was implemented for three cycles. The subjects were 30 female students of the eight graders of Junior High School Islam Terpadu Darul Azhar, South East Aceh, Aceh, Indonesia. The data collection instruments include observation, test, interview, and documentation. The data were obtained from pre and post-test of each cycle. The findings revealed that Carousel Feedback and Round Table cooperative learning models could increase students' HOTS and Social Studies learning outcomes. The habit of giving time to the students to think, providing scaffolding, observing students' activity, asking questions, discussing in groups, analyzing the results and providing feedback are the examples of activities that should be familiarized.

Keywords: carousel feedback, round table, higher order thinking skills (HOTS), social studies learning outcomes

1. Introduction

The Learning of the 21st Century puts greater emphasis on students' ability to perform Higher Order Thinking Skills (HOTS) (Shukla & Dungsungnoen, 2016; Saido et al., 2015; Heong et al., 2012). HOTS can be achieved when students are able to understand and integrate knowledge with their experience (Anderson & Krathwohl, 2015). The effort in improving the ability to perform HOTS is not merely centered on students, but it is also influenced by teacher's strategy (Zerihun et al., 2012; Noor, 2009; Sunal & Haas, 2005; Zohar, 2004). Teacher's strategies are very helpful to connect the students' thinking skills when learning in the classroom (Noor, 2009). For that, learning must be really well designed to be meaningful and in line with the goals, in accordance with what students need to prepare for their future.

Based on the results of observations and tests by giving a test on HOTS to the eight grade students, it was found some problems as follow: (1) group discussion has not been active in stimulating students to explore problems and give ideas as it seems that students need a long time in observing activities and giving answers, students are not accustomed to facing problems that require analysis, assessment and ideas, (2) student's score in HOTS are still categorized as low and it affects their learning outcomes, (3) students are not confident to express their opinions when were asked by teachers, and (4) during the teaching process the teacher rarely links the learning materials with objects or events that exist in the surrounding environment. Identify the above problems into the study material that learning is not only limited to convey information and knowledge from the teacher to the students, but to do activities that enable students to think, develop their knowledge and ideas.

Once the problem is identified, then a review is done to gather further information about the problem that has been found. Based on the results of reflection and interviews with social studies teachers in the class there found several things underlying the cause namely: *firstly*, the teaching and learning process done by teachers tends to

spoon feed the students that is by directly providing knowledge to students. This is in line with the findings of Shukla and Dungsungnoen (2016), Saïdo et al. (2015), Nuh (2015), Noor (2009) stating that habit affects the knowledge, thinking skills, and learning outcomes received by students. *Secondly*, there is a lack of contextual learning, as the source of information only relies on teacher's books and student books without relating it to the present condition and the environment. *Thirdly*, in teacher group discussions less trigger students' ability to have the ability in analyzing, evaluating, creating through the habituation of student activities such as collecting, processing, presenting, and concluding (Saïdo et al., 2015; Nuh, 2015; Askeil-Williams & Lawson, 2005). The knowledge received by students actually depends on what is taught by the teacher (Arends, 2013; Noor, 2009; Sunal & Haas, 2005). When teacher merely conveys knowledge, then the learning objectives achieved in general is making the students to have the basic ability to think logically and critically. Accordingly, for higher thinking skills through developing hypothesis, inducing curiosity, inquiry, problem solving, and social life skills will be difficult to achieve.

The finding on the previously mentioned problem identification is in line with the results of the analysis of the ability of science content and cognitive domain conducted by the Research and Development Board of the Ministry of National Education in 2010 which revealed the estimated average ability of Indonesian students of the 8th grade junior high school based on the study TIMSS 2007. Then it was revealed that the highest score is only on the skill of knowing while the reasoning and applying skills are lower (Kemdiknas, 2010). This analysis indicates that in general students in Indonesia are only capable of manifesting their skills in the form of memories of the knowledge that students obtained at school. On the other hands, the skills like reasoning and applying have not been able to be understood by students. Therefore, instructional design should be changed from teaching to learn to remember – to teaching to learn to think (Noor, 2009). Poor understanding of students in solving problems involving the skills of HOTS with cognitive domain of analyzing, evaluating and being creative affects students' learning outcomes. HOTS should have been an early habituation activity in the learning process at school.

The above facts become the basis of research on the need for appropriate learning strategies to improve students' thinking skills and learning outcomes. Students' thinking skills can be seen when students are able to question a problem, reflect, rate, give their perspective on something, and apply the new information it receives. One solution to overcome these problems is by using Carousel Feedback and Round Table cooperative learning models. The model was developed by Kagan and Kagan in his book entitled "Kagan Cooperative Learning". S. Kagan and M. Kagan (2009) states that cooperative learning can improve thinking skills, but it is also able to enhance the activity, social skills, team building in group work, communication skills, and build knowledge. The implementation of cooperative learning model selected aims to improve students' HOTS and students' learning outcomes.

2. Review of Literature

2.1 Carousel Feedback Cooperative Learning Model

Carousel Feedback Cooperative learning model is one of the models developed by Kagan and Kagan (2009). This lesson provides an opportunity for students to work in groups to discuss and understand issues, problems, and concepts to remember facts, beliefs, information, and/or agreements. During this process, the students work together to produce a response to the question posed by the teacher and reflect responses generated by fellow students. This learning enables the students to practice the skills of evaluating, observing, and discussing a variety of tasks, demonstrating their efforts, and evaluating the work of others and expressing opinions through the feedback sheet (S. Kagan & M. Kagan, 2009; Martha, 2015).

S. Kagan and M. Kagan (2009) outlines the steps of Carousel Feedback cooperative learning model as follow: (a) The students are divided into groups of 4-5 of heterogeneous people, (b) the group is asked to discuss the task procures and write down the answers on the worksheets provided, (c) each group rotate or move clockwise and occupy the following group, (d) one student in a group read the notes on the answers, the group project then provide feedback within the specified time, (e) the teacher communicates in order that the group moves to the next group, (f) the group move, discuss, and give feedback on the next group to go back to the same place, (g) the group review the feedback they receive from the other groups. This model can be one of the learning strategies that provide opportunities for students to work in teams, explore ideas by asking / expressing ideas and providing feedback (Effendi, et al., 2016).

2.2 Round Table Cooperative Learning Model

S. Kagan and M. Kagan (2009) stated that Round Table cooperative learning model functions as teambuilding, social skills, communication skills, knowledge building, learning process, info processing and thinking skills. In

conclusion, Round Table cooperative learning model can improve students' thinking skills in the domain of cognitive, affective, and psychomotor.

The steps on the implementation of Round Table cooperative learning model are as follow: (a) it begins from the formation of heterogeneous group, (b) the teacher first gives problems/assignments that have the possibility of a variety of answers, (c) the teachers gives some time for students to think, (d) the teacher asks the students to write the answers on a sheet of paper that has been provided in turns clockwise, and (e) students in the group should reach a mutual agreement before an answer is written on paper (Kusumaningtyas, 2015; Malukah, 2015; Masrofik, 2013; S. Kagan & M. Kagan, 2009).

2.3 HOTS and Learning Outcomes

HOTS mentioned in this study are based on the Bloom's Taxonomy revised. HOTS is an activity that involves cognitive level of high hierarchy on thinking taxonomy proposed by Bloom which include the skills of analyzing, evaluating, and creating (Anderson & Krathwohl, 2015; Shukla & Dungsungnoen, 2016). The activities on HOTS help skilled students to seek knowledge using both inductive and deductive reasoning to think of an answer or identify and explore new scientific examination of facts that exist (Thitima & Sumalee, 2012). The implementation of the activity of thinking is how the teachers design learning activities that allow students to be able to explore the capacity to think so that they can exercise students' cognitive, affective, and psychomotor skills then they can implement it in real life. Kuswana (2013) stated that students received new knowledge will be compared to their existing one, and then it is corrected, supplemented, adjusted, and combined. The process of learning to develop students' thinking skills will be able to improve their HOTS (Thitima & Sumalee, 2012). In its application, HOTS requires repeated thinking activity (Shukla & Dungsungnoen, 2016).

Learning outcomes are the abilities of the students after receiving their learning experience (Sudjana, 2011). While Hamalik (2008) stated that the results of learning are behavioural changes in a person, who at first does not know things and it changes into know things, does not understand into understand. In the Revised version of Bloom's Taxonomy, learning outcomes can be classified into three aspects, namely cognitive, affective and psychomotor domains. In this study, the learning outcomes of social studies that wants to be achieved is at this stage of the C4-C6 cognitive domain which were measured using an essay test instrument. When the teacher is able to provide learning activities that stimulate students to think critically (HOTS), it will improve learning outcomes.

3. Method

This classroom action research used Elliott model which covers the following cycle stages: (a) the identification of problems that occur in the classroom, (b) review, (c) general planning, (d) implementation of action, (e) observation, and (f) reflection. Prior to the implementation of the measures, the researcher conducted a re-identification of the problem and as a preliminary study on the student's skills in solving tests related to HOTS and students' learning outcomes for the eighth grade students. Furthermore, the researcher conducted an interview with social studies teachers in the classroom regarding the general plan of research activities. At the time the action starts from general planning cycle.

Prior to the application of learning, the researcher conducted (a) designing a learning device for one subject. Each action step consists of five meetings, including test cycles, (b) designing instruments of observation to determine the enforce ability of learning undertaken by teachers and students, (c) designing a test instrument to determine HOTS and student learning outcomes. Learning devices are considered valid and fit for use if it reaches above 70.00%.

The subjects were the eighth grade students as many as 30 female students from Junior High School Islam Terpadu Darul Azhar, South East Aceh, Aceh, Indonesia. As mandated by Rule of Shariah prevailed in this province, there were separation between male and female students, and they were placed in separated classrooms. Accordingly, researcher was not able to take subjects randomly. In this research, heterogeneity of the groups was based on the results of students' cognitive abilities. Data were collected by using observation, test, interview, and documentation. In this classroom action research, results of the implementation of teacher and students activities can be categorized into good if its accumulative point reaches above 70. Likewise, individual learning outcomes and results of classical study can also be categorized into good and comprehensive if its accumulative point reaches above 70. The stages of research are based on Elliott (2001) and exhibited in Figure 1.

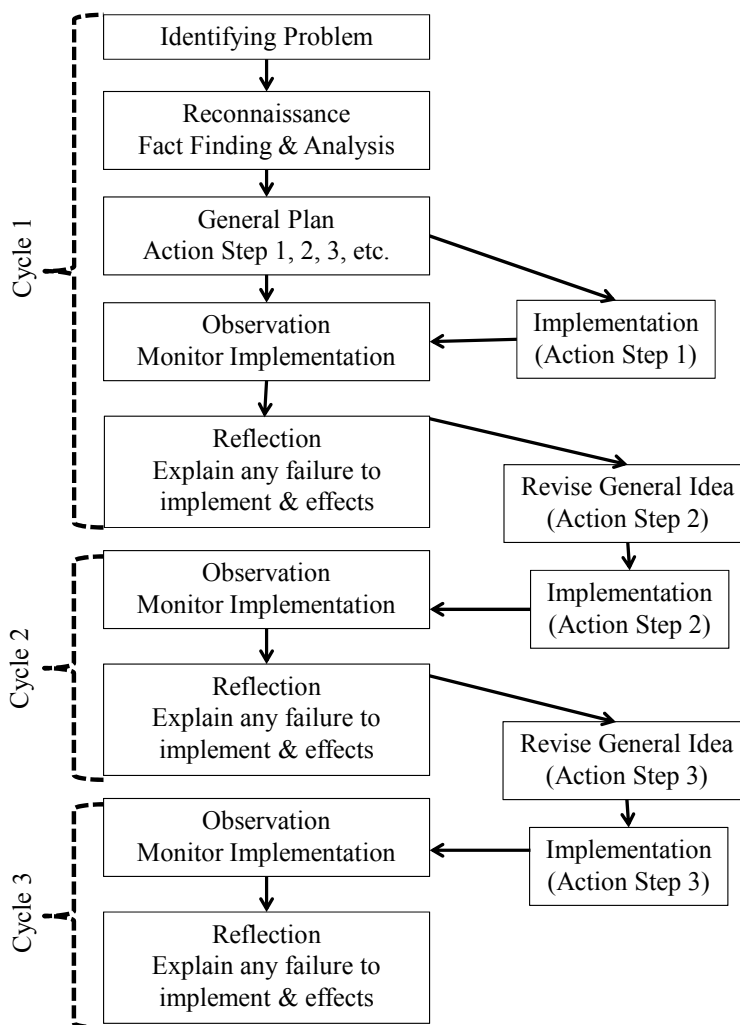


Figure 1. The steps of modified classroom action research cycle (Elliott, 2001)

The scoring guideline of HOTS is based on operational verbs of Bloom's Taxonomy (Anderson & Krathwohl, 2015) as described on Table 1.

Table 1. HOTS level and operational verbs

The activity levels of HOTS	Operational Verbs	Score
Analyzing: Can students produce various answer alternatives by distinguishing different concept?	Evaluate, compare, criticise, sequence, distinguish, and determine.	(3) Appropriate (2) Less Appropriate (1) Not Appropriate (0) No Answer
Evaluating: Can students defend on a certain choice by giving logical reasoning?	Evaluate, criticize, choose/select, relate, and give opinion.	(3) Appropriate (2) Less Appropriate (1) Not Appropriate (0) No Answer
Creating: Can students answer, make or develop product, theory or new perspective based on the learning process undergone?	Assemble, design, plan, make, and formulate.	(3) Appropriate (2) Less Appropriate (1) Not Appropriate (0) No Answer

HOTS scoring guidelines were taken from each of the students' test results. The maximum score is 15 and the minimum score is 0. The results categories are shown in Table 2 to find out on what criteria HOTS score was obtained for each student generally. The total accumulative is divided into four intervals by a range of 3.75 and it is presented in Table 2.

Table 2. The criteria of students' HOTS

Interval Score of HOTS	Categories of HOTS
Above 11.25 up to 15	High
Above 7.50 up to 11.25	Moderate
Above 3.75 up to 7.50	Sufficient
0 up to 3.75	Low

Source: Analysis of the researchers, 2017.

HOTS is said to be successful individually if someone gets the score above 7.50 or in moderate category. While classically, it is said to be successful if the percentage of students who achieve above 7.50 reach 70.00% from the total number of students.

4. Results and Discussion

4.1 The Implementation of Carousel Feedback and Round Table

Having completed the general planning and declared valid, the researcher then implemented classroom action research starting from the action cycle 1. Each cycle consists of five meetings. Meeting 1 and meeting 3 by applying Carousel Feedback while meeting 2 and meeting 4 implementing Round Table cooperative learning models, and meeting 5 is for taking test. The teaching and learning process is started by firstly the teacher builds student ideas through asking questions and raising problems contained in students' worksheet. Students in the group discuss questions or problems posed by the teacher cooperatively. Then it is proceeded with the implementation of cooperative learning steps Carousel Feedback and Round Table and it was end up with conclusion. During the implementation of the study, the researcher and the teachers were observed by two observers. They were Mr. Zulfikri (social studies teacher from the same school where research was conducted) and Mr. Januar Musa (social studies teacher from another school – Public Junior High School 3 Kutacane, Aceh) to know the achievement of success and the improvement of learning outcomes through the implementation this research.

The results showed that students' learning achievement has improved from cycle 1 to cycle 2, and from cycle 2 to cycle 3. Table 3 shows the learning achievement.

Table 3. Learning achievement (%)

Activities	Achievement Cycle 1	Achievement Cycle 2	Achievement Cycle 3	Improvement from Cycle 1 to Cycle 2	Improvement from Cycle 2 to cycle 3
Teacher	71.22	82.23	92.38	11.00	10.15
Student	61.85	81.64	92.77	19.79	11.13

Source: Data Analyzed (2017).

Based on the results as mentioned in Table 3, the implementation of learning activities in cycle 1 by teachers and students has reached above 70.00 points, and accordingly it be categorized into good. In cycle 2 and cycle 3, the points have increased compared to previous cycle. From interview with several students, it can be concluded that students feel challenged and very happy to accomplish this learning activities although at first, some of them feel confused. The improvement of learning achievement is exposed in Figure 2.

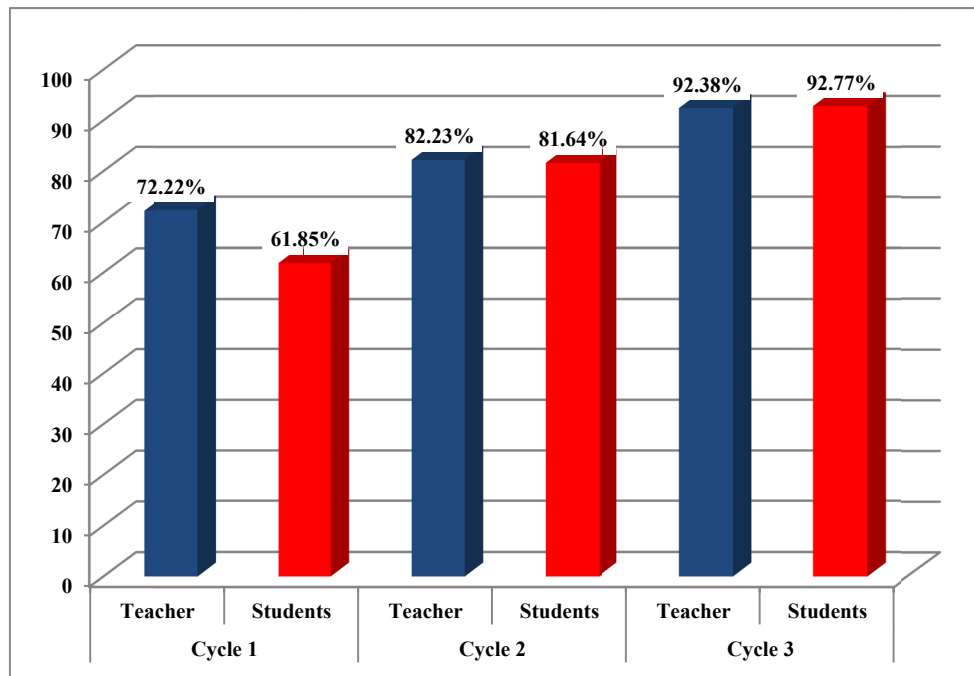


Figure 2. The improvement of achievement (teacher and students' activity)

In action cycle I, the learning material being taught was the function and role of natural resources and non-biological for human life. The findings at the time of reflection in cycle 1 which was analyzed by the researcher and his observer were as follow: (a) in the activity of observing and working on students' activity sheet, each group took a long time to think in finding answers, make decisions and solve problems; (b) discussion group was not optimum running; (c) in the Carousel Feedback cooperative learning model, it was found that the activities of providing feedback have not explored ideas, and (d) at the time of Round Table cooperative learning model, it was found that students' answers tend to be homogeneous or in other words, they do not have various answers.

The finding on the actions of the first cycle was discussed for the purpose to improve learning achievement in the cycle 2. The solution provided consists of two aspects. Firstly, teachers emphasize activity of students in group discussions. Working together in a group actively will provide a positive dependency during group discussions. D. Johnson and R. Johnson (2009) and Stenlev and Siemund (2011) stated that the success of the learning needs of positive interdependence and it should be interrelated with the whole group to complete the task in understanding the subject matter. Secondly, teacher provides reinforcement and scaffolding at the time of observation and group discussions. Zerihun et al. (2012) stated that active students and teacher's guidance greatly contribute to improve learning achievement.

In the cycle 2, the material being taught was about non-living natural resources for national development. The general implementation of the cycle 2 was performed well. The result of this reflection is found that the students' answers still were not optimal. For example, students were asked to design a simple activity that they can do to conserve non-renewable energy resources in the use of electricity at home and fuel for motor vehicles. In this case, the written answer generally comes from the student book, and they have not explored the idea/notion of the words they are supposed to do on their own. This happens because the students still have difficulty in expressing ideas that they have. Heong (2012) stated that students experienced deadlock ideas in solving problems given. The students have not been accustomed to producing various alternative answers to differentiate different concepts, provide a statement by giving logical reasons, and answer the question using new perspective of the learning process as they have acquired.

In the action of cycle 3 the material covered was non-living natural resources and water tourism. There are some solution to gain improvement in the cycle 3, namely (a) focus on strengthening the provision of reinforcement and scaffolding in each group during the group discussion, the feedback was given on the implementation of Carousel Feedback and they were asked to note their answer in the process of learning using Round Table, (b)

stimulate students to reveal that there are no wrong answers, so that students believe in themselves or on the answer that they wrote, and (c) explore the question to the student through group discussions (Askill-Williams & Lawson, 2005) and gives the example of stimulus (Zohar, 2004).

4.2 The Implementation of Carousel Feedback and Round Table for Improving HOTS

Increasing students' HOTS will ultimately put the students at ease when they have to remember, understand, and apply what they have obtained during the learning process (Anderson & Krathwohl, 2015). Increasing HOTS can be done by asking questions, group discussion, peer tutoring, and cooperative learning (Karabulut, 2012; King et al., 2011; Askill-Williams & Lawson, 2005; Kauchak & Eggen, 1998). Increasing HOTS using Carousel Feedback cooperative learning model can be initiated by familiarizing the students with the activity of observing, discussing, rotating teams, analyzing the work of other groups and providing feedback. Increasing HOTS on Round Table cooperative learning model can be found in the activity of thinking to understand the problem and writing down ideas/ideas on a sheet of discussion. The habituation of thinking activities is done by giving the application of these students' worksheet problem on students' worksheet (Student Activity Sheet). Table 4 below shows students HOTS in each cycle.

Table 4. Learning achievement of students' hots in each cycle (total students 30; maximum score 15)

Indicators	Cycle 1			Cycle 2			Cycle 3		
	Success Students	Success (%)	Mean Score	Success Students	Success (%)	Mean Score	Success Students	Success (%)	Mean Score
Analyzing	12	40.00	7.08	18	60.00	9.00	26	86.67	10.67
Evaluating	10	33.33	6.33	22	73.33	9.17	26	86.67	10.08
Creating	6	20.00	5.33	11	36.67	7.33	21	70.00	9.33
Grand Mean			6.25			8.50			10.03

Source: Data Analyzed (2017).

HOTS is said to be successful if it obtains a minimum score and in a moderate category. Classically it is said to be successful if it reaches the percentage above 70%. From Table 4, it can be concluded that Carousel Feedback and Round Table cooperative learning models was proclaimed to be successful if it was able to increase the score of HOTS in each cycle. The grand mean of HOTS score in cycle 1 reached 6.25 point categorized into sufficient or average, in cycle 2 has reached 8.50 point, and it was categorized into above average. In cycle 3, it has increased into 10.03 point categorized into high. There was an increasing points of grand mean from cycle 1 to cycle 2, and from cycle 2 to cycle 3.

Table 4 shows the analysis of each HOTS indicators. The creating indicator of cognitive domain was still lower compared to analyzing and evaluating indicators. In this case, students still tend to have difficulty in providing answers from a new angle or from different perspectives. Overall, there were increasing point of Means Score from cycle 1 up to cycle 3 is exhibited in Figure 3.

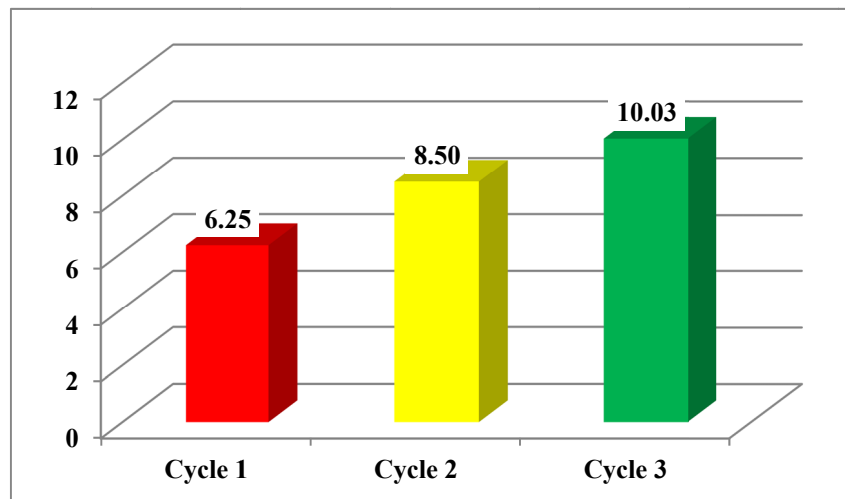


Figure 3. Increasing points of students' learning achievement for HOTS

From the above results it can be concluded that the effort in increasing students' HOTS can be done through a series of activities which are continuously repeated (Shukla & Dungsungnoen, 2016), by combining knowledge and their learning experience (Anderson & Krathwohl, 2015). Surya (2015) stated that to improve HOTS, it can be done through the activities of observing, memorizing, concept forming, giving response, analyzing, comparing, and giving consideration. Learning process that stimulates the activity of HOTS must be carried out repeatedly (Shukla & Dungsungnoen, 2016). In addition to its activities, learning should also be linked to the real environment where students live. This is in line with Anderson & Krathwohl (2015) who stated that HOTS can be achieved when students try to understand and integrate their knowledge with experience. Giving scaffolding also brings a positive effect in increasing HOTS (King et al., 2011; Kauchak & Eggen, 1998). In Carousel Feedback and Round Table cooperative learning model, students' worksheet was designed by integrating knowledge/materials supported by concrete examples on students' environment.

4.3 The Implementation of Carousel Feedback and Round Table for improving HOTS

Learning outcome is the result of the process of changes in behaviour on students who at first does not know things, then they comes knowing things, and those who do not understand, then they become understand (Hamalik, 2008). Cognitive learning outcome was obtained from the development of student test score results at the end of each cycle. The instrument used to determine the cognitive achievement of students consists of 5 questions in each cycle in the form of essay test questions. Questions are based on revised Bloom's Taxonomy which consists of two questions of analysing (C4), two questions of evaluating (C5), and one question of creating (C6). Table 5 shows the results of students' learning in each cycle.

Table 5. Students learning outcomes in each cycle (total students 30)

Implementation	Score	Number of Students	Percentage	Categorized into:	Mean Score
Cycle 1	70 – 100	10 students	33.33%	Successful	54.83
	Below 70	20 students	66.67%	Unsuccessful	
Cycle 2	70 – 100	18 students	60.00%	Successful	68.33
	Below 70	12 students	40.00%	Unsuccessful	
Cycle 3	70 – 100	26 students	86.67%	Successful	75.83
	Below 70	4 students	13.33%	Unsuccessful	

Source: Data Analyzed (2017).

Based on Table 5, the mean score of student learning outcomes in cycle 1 was 54.83, and increased in cycle 2, the mean score was 68.33, and in cycle 3, the mean score was 75.83. The result of learning outcomes for the whole class of successful students has reached above 70%, and it is reached in cycle 3. The number of students who were successful are 26 students (86.67%). The percentage of improvement for successful students in each

cycle is exhibited in Figure 4.

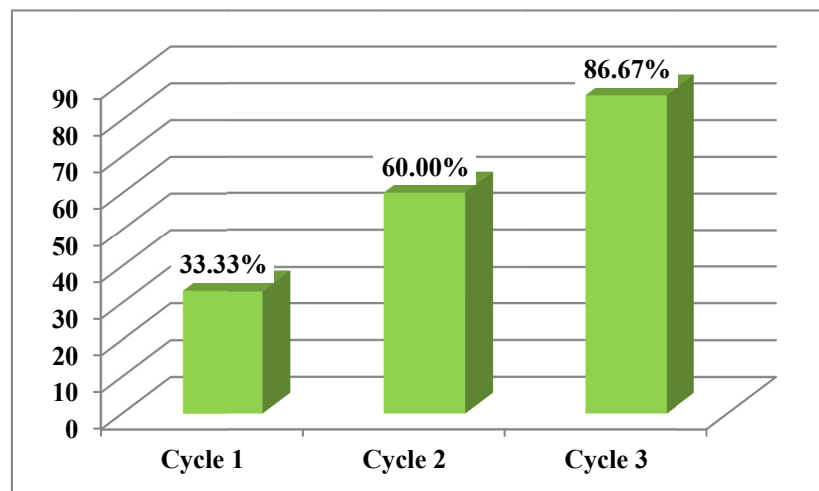


Figure 4. Percentage of successful students

The data shown on Table 5 showed that Carousel Feedback and Round Table cooperative learning models can improve students' learning outcomes. This is in line with the results of a research conducted by Effendi et al. (2016), Martha (2015), Kusumaningtyas (2015), Malukah (2015), and Masrofik (2013) with a focus on learning outcomes using Carousel Feedback and Round Table cooperative learning models. In the learning activity, students are directed to understand and explore the subject matter independently and in groups. This is done so that students acquire the knowledge by themselves and it is significant of what he learned. This is consistent with the statement of Al-Bashir et al. (2016), and Sudjana (2011) who states that the learning outcomes of the students were his or her learning experience. The learning experience which a student obtained through a series of activities designed by the teacher.

The improvement on students' cognitive learning outcomes was also obtained due to the improvements in the implementation of each cycle of learning and cooperation among students. In addition, Carousel Feedback and Round Table cooperative learning models are not only done in the classroom, but they are also done outside the classroom. In cycle 1, learning occurs in the classroom, in cycle 2 of learning was done in courtyard of the school mosque, while cycle 3 was performed in the courtyard of the hostel and the river bank near the school. The changes in the study room were done so that students would not get bored and feel comfortable at the time of learning. This is in line with the results of research by Soetjipto and Hanurawan (2009) which stated that a cozy study room as one component of the learning environment will greatly assist the implementation process of learning. In addition, the groups' activities were carried out repeatedly to stimulate students to improve their learning outcomes (Shukla & Dungsungnoen, 2016). Slavin (2015) stated that the important goal of cooperative learning is to provide students with the knowledge, concepts, understanding of, and ability to work in various teams, collaborate, and able develop interpersonal relationships.

5. Conclusion

Based on the above results, it can be concluded that the implementation of Carousel Feedback and Round Table cooperative learning models can improve HOTS social studies learning outcomes in eight grade students of Junior High School "Islam Terpadu Darul Azhar", Southeast Aceh, Aceh, Indonesia. The effort in increasing students' HOTS can be achieved when teachers are able to design a series of measurable activities to be performed by students like the habit of giving time to the students to think, providing scaffolding, observing students' activity, asking questions, discussing in groups, analyzing the results, and providing feedback are the examples of activities that should be familiarized. When the teacher is able to increase HOTS, it will have positive impact on learning outcomes.

For classroom action researchers, it is advisable for teachers to undertake the above activities as the main process. The obligation of teachers as educators is that they must be able to provide the best education in accordance with their time. This study only focuses on how the application of Carousel Feedback and Round Table that can improve HOTS and learning outcomes. This study does examine in detail the thought activity given to the

students.

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