

Implementation of Small Group Discussion Learning Methods to Improve Cognitive Learning Outcomes in Geography Subjects in High Schools

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1. Introduction

National education is a planned effort to build the character and culture of the Indonesian nation. Education boils down to a goal, namely the formation of an identity that is manifested in an essential unity of a subject with the attitude of life and behavior that accompanies it [4]. A learning process is ideally able to provide inspiration, fun, provide challenges, and motivate students to be able to participate actively, interactively and have sufficient space for creativity and independence according to the talents, interests, and development of students both physically and psychologically. In the process of achieving Basic Competencies, it should be adjusted to the vision of national education, namely the realization of the education system as a strong and authoritative social institution to empower all Indonesian people to develop into quality humans so that they are able and and pro-active in responding to the challenges of a dynamic era [6].

One of the problems in Teaching and Learning Activities is that student learning outcomes are still low. This is due to the learning competence that is not achieved. In achieving competence, a strategy in learning is needed, such as selecting a learning model that is in accordance with the characteristics of the material and learning objectives. This requires educators to master various learning models and methods so that learning can be packaged as attractively as possible. Selection of the right learning method can create effective, fun, and memorable learning conditions so that students become more interested in learning and are expected to provide better learning outcomes.

Geography is one of the subjects in Senior High School (SMA) which is taught separately, in contrast to Junior High School (SMP) which is part of the Social Sciences subject (IPS). The Geography subject is studied so that humans, both as individuals and as part of the nation, can understand the environment of the state and nation of Indonesia and other nations in the world. Geography is the science to encourage the improvement of life and support life throughout life. Therefore, in the process of learning geography it is necessary to link understanding concepts with skills and habituation [10].

In fact, theoretically, namely the practical implementation of Geography lessons in schools, namely the reality on the ground there is an inequality. This can be due to the not yet integrated learning process which is the goal of Geography lessons. [9] The topic of environmental conservation integrated into teaching and learning materials is less appropriate, both in terms of content and time allocation. The inappropriate content and time allocation have an impact upon student's lack of understanding of the subject matter.

The statement illustrates that awareness is very important in learning Geography. The suitability between content and time allocation needs to be adjusted so that the learning process can form knowledge. The achievement of the vision and mission of learning Geography is influenced by various factors and is closely related to students, facilities and infrastructure, the learning process in the classroom, education management and government policies, even the role models of teachers and parents, as well as supervision and responsibility of all parties.

The scope of the field of study Geography provides the possibility for humans to obtain answers to questions about the world and its surroundings. Without realizing it, everyday human life is always associated with Geographic phenomena. Geografi studies the environment where a space can be both the cause and the impact of a phenomenon, for example: environmental pollution problems, forest fires, disasters, poverty, or population explosion, which can be linked to the culture of a place. Geography learning has the aim to instill awareness of the existence of space in an environment.

Geography is a branch of social science that contributes to the formation of student's values, attitudes and skills through direct interaction with nature in addition to providing knowledge. Supposedly, students are able to master competencies easily, because this lesson is directly related to their lives. Not achieving completeness of Basic Competence is thought to be closely related to the learning model set by the teacher. Therefore, choosing the right learning model is very important in

delivering learning material. To achieve the specified competencies, the selection of a learning model must adjust to the learning objectives to be taught.

Geography learning in the majority of schools is still focused on learning with conventional models. The discussion method is the method most widely used in conventional learning models besides the lecture method. The discussion method is a way of presenting lesson material where the teacher provides opportunities for students (groups of students) to hold scientific conversations to gather opinions, make conclusions or compile various alternative solutions to a problem [13]. According to Supriyati's opinion [12], if it is carried out carefully, discussion is a fun way of learning and stimulates experiences. The use of the discussion method teaches children to solve a problem and make decisions by deliberation or democracy with discussion partners and learn to respect all opinions or input from discussion partners and have benefits for improving speaking skills.

In the curriculum of educational institutions, it is necessary to introduce small group teaching techniques like fishbowl (and others) along with the traditional teaching methodology to generate more interest from the students and make learning joyful. Thus, there should be a mixture of teaching-learning methods rather than be following only a single method, for making education enjoyable rather than a burden [14]. Small Group Discussion is a learning method that can provide opportunities for every student to express their opinions through discussions with other members in their group and learn independently and not only rely on teachers because this method involves all students. The use of the Small Group Discussion method is expected to make students more active and help make it easier for students to understand lessons.

Learning Methods for Small Group Discussion, namely the learning process through group discussions with small members with the aim that students have the ability to solve problems related to the subject matter and problems faced in everyday life [3]. In another opinion [2], the Small Group Discussion Learning Method means the process of seeing two or more individuals interacting as a whole and facing each other regarding the goals or objectives that have been determined through information exchange, and defending opinions. or problem solving.

The selection of this learning method can be used as an alternative to use in the learning process that leads to providing an understanding of a concept and encourages students to dare to answer the questions asked and even make questions according to the material to be or have been studied.

The Small Group Discussion method in its application is not much different from the discussion system. In the application of the Small Group Learning method, the learning discussion is not formulated based on the problem first but based on the learning material delivered by the teacher to be discussed by the student group. Based on these thoughts, the study applied the Small Group discussion learning method as a comparison to see differences in student learning outcomes.

Small group discussion learning model and the conventional learning model in Integrated Social Studies subjects. The use of the small group discussion learning model and the conventional learning model both increased after being given treatment [1]. Although both have increased, the increase in the post-test score of the small group discussion learning model is better than the increase in the conventional learning model. Through this method, students dare to express their opinions in class and be active in their respective study groups, thereby creating interactions between teachers and students, and students and students. Thus, the expected competencies can be achieved.

2. Implementation of Small Group Discussion Learning Methods in Geography Subjects in High Schools

2.1 Research methods

In this study, the method used was quasi-experimental [11], using a non-equivalent control group design as shown in Table 1.

Table 1
Experimental Research Design

Class	Pre-test	Treatment (X)	Post-test
Experimental Class	O1	Using the Small Group Discussion model	O2
Control Class	X1	Without using the Small Group Discussion model	X2

The population of this study included 350 students of SMA Negeri 1 Majalaya who sat in class XI and were divided into two majors, namely Science and Social Sciences. The sample was taken using judgment sampling technique, so that there were two classes, namely class XI IPS 4 as a control class with conventional learning methods and class XI IPS 3 as an experimental class with the small group discussion learning method. The data was collected by using measurement techniques in the form of learning outcomes tests by giving scores on the pre-test and post-test.

Whether or not there is an effect of the implementation of the Small Group Discussion learning method on student cognitive learning outcomes can be seen from the differences in student learning outcomes between the experimental class and the control class. Referring to Bloom's opinion cited by Sudiyono (2011), Cognitive domain is learning success as measured by the level of intellectual mastery, this success is usually seen by increasing student knowledge. The instrument used is a multiple choice question regarding the subject of Population Problems in Indonesia including indicators: Understanding (C2), Application (C3), Analysis (C4).

The data obtained from the learning outcomes test is then processed by the following steps: (1) Providing the results of the pre-test and post-test scores of the control class and experimental class students, (2) Knowing the normality of the post-test distribution of each class by using the SPSS Version 20 for Windows program. With the category for testing data by Kolmogorov Smirnov (KS) using SPSS Version 20. The test category are as follows: (a) If the significance > 0.05 then the data is normally distributed, (b) If the significance < 0.05 then the data is not normally distributed [5].

If the two data are normally distributed, then the hypothesis is tested according to the following steps: (1) If the two data are normally distributed, then the t test is carried out with the homogeneity of the variants with the test category: (a) If the significance > 0.05 then the post value data -test experiment and post-test control have the same variants, (b) If the significance < 0.05 then the data on the post-test experimental and post-control scores have different variants. (2) After the homogeneity test is continued with the t-test. The test uses a significance level of 0.05 (95% confidence level). The test category are as follows: (a) If the significance > 0.05 then there is no difference in the results of the post-test experimental and post-control scores, (b) If the significance is < 0.05 then there is a difference in the results of the post-test experimental and post-test scores.

2.2 Learning outcomes in the control class using conventional learning methods

Cognitive learning outcomes in the control class can be seen through two measurements, namely the pretest and posttest. The pre-test was carried out before students were given material on population problems in Indonesia as many as 34 multiple choice questions. Based on the pre-test results, it can be seen that the average score in the control class (XI IPS 4) is 76.15 with a maximum score of 92 and a minimum score of 62.50. The next step is to determine the interval class by dividing the scores into three categories, namely high, medium, and low. The formula used to determine the interval class is:

$$Ci = \frac{Xn - Xi}{k}$$

Keterangan

Ci = Class Interval

Xn = Maximum Score

X1 = Minimum Score

K = Category

Based on the results of calculations using this formula, an interval class is obtained, namely 10. After the class interval is known, the next step is to make the learning achievement achievement category during the pre-test in the control class as in Table 2.

Table 2
Learning Outcome Category (Pre-Test) of Control Class

No	Score Interval	Category
1	83-92	Higher
2	73-82	Middle
3	62-72	Lower

(Source : Research data processing, 2020)

Table 2 shows that the learning achievement achievement category for the pre-test are divided into three, namely: High (Range of values between 83-92), Medium (Range of values between 73-82), and Low (Range of values between 62-72). After the achievement category for learning outcomes are known, the next step is to make a frequency distribution table using a simple percentage formula as follows:

$$P = \frac{F}{N} \times 100\%$$

Information:

P = Percentage

F = Frequency

N = Number of Responden

Table 3
Frequency Distribution of Control Class Pre Test Scores

No	Score Interval	Category	Frequency	Percentage
1	83-92	Higher	5	14%
2	73-82	Middle	25	69%
3	62-72	Lower	6	17%
Jumlah			N=36	100%

(Source : Research data processing, 2020)

By paying attention to Table 3, it can be seen that the majority (69% of respondents) or 25 students in the control class have learning outcomes in the "middle" category with a range of values between 73-82. After carrying out the learning process with a conventional learning model using the lecture and discussion method, student learning outcomes were measured again through a post test with an instrument in the form of multiple choice questions given during the pre test.

Based on the measurement results in the form of post-test, it can be seen that the maximum score obtained by the control class students is 97, the minimum score is 60, and the average score is 79.21. By using the same stages and formulas, an interval class for the post-test score was obtained, namely 12. The achievement category for learning outcomes during the post-test in the control class are shown in Table 4.

Table 4
Learning Outcomes Achievement Category (Post-Test) of Control Class

No	Score Interval	Category
1	86-98	Higher
2	73-85	Middle
3	60-72	Lower

(Source : Research data processing, 2020)

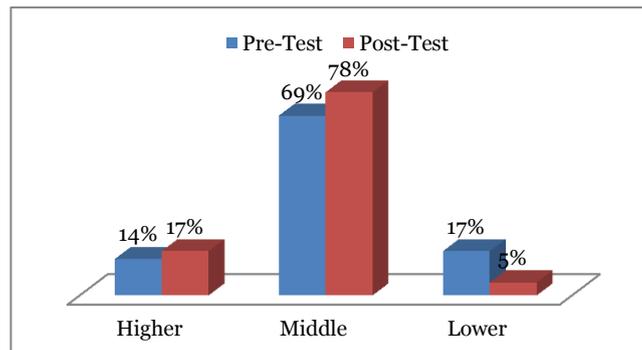
The learning achievement category for the Post-test are based on Table 4, namely: High (Range of values between 86-98), Medium (Range of values between 73-85), and Low (Range of values between 60-72). After determining the achievement category for learning outcomes, the next step is to create a frequency distribution table as in Table 5.

Table 5
Frequency Distribution of Control Class Post-Test Scores

No	Score Interval	Category	Frequency	Percentage
1	86-98	Higher	6	17 %
2	73-85	Middle	28	78 %
3	60-72	Lower	2	5 %
Jumlah			N=36	100%

(Source : Research data processing, 2020)

Based on the results of the calculations that have been done (in Table 5) it can be seen that the scores of 2 students (2%) are in the low category, 28 students (78%) are in the medium category and 6 students (17%) are in the high category. The effect of using the discussion method on student learning outcomes in the control class can be seen by comparing the results of the pre-test and post-test. Visually, the comparison of the pre-test and post-test scores in the control class can be seen in Picture 1.



Picture 1
Comparison Diagram of Control Class Learning Outcomes
(Source : Research data processing, 2020)

The diagram in Figure 1 shows the changes in learning outcomes in the control class during the pre test and post test. The minimum score during the post test decreased from 62 to 60. However, there was an increase in the maximum score from 92 to 97 and the average score from 76.15 to 79.21. Changes in these scores affect the achievement category for learning outcomes. The low criterion at the time of the Pre-Test increased from 14% to 17%. Medium category increased from 69% to 78%, and low category fell from 17% to 5%. The decline in achievement at low category indicates that there is a change in student learning outcomes in a positive direction. Overall, the learning outcomes of the control class were in the middle category with an increase of 9%.

2.3 Learning Outcomes in the Experimental Class Using the Small Group Discussion Learning Method

As in the control class, measuring student learning outcomes in the experimental class using the Small Group Discussion method was conducted twice. Before giving the material, students were first given 34 multiple choice questions in the pre-test. After the Pre-Test, next is the implementation of the learning process using the Small Group Discussion learning method with the following steps: (1) Divide the class into small groups, (2) Provide case study questions in accordance with Competency Standards (SK) and Basic Competencies (KD), (3) Give instructions to each group to discuss the answer to the question, (4) Ensure that each member is active in the discussion, (5) Give instructions to each group through a designated spokesperson presenting the results of the discussion in the class forum, and (6) The teacher draws conclusions

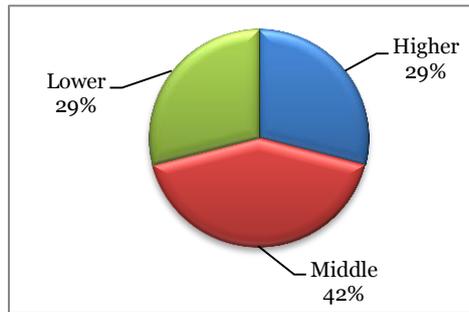
After the learning process using the Small Group Discussion model is complete, student learning outcomes are measured again through post-test. Based on the Pre-Test, it can be seen that the maximum score in the experimental class is 90, the minimum score is 60 and the average score is 75.64. By using the same steps and formulas for the control class, the category for learning outcomes achievement and the frequency distribution of the pre-test scores in the experimental class were determined. Learning outcomes in the experimental class are divided into three category, namely high, medium and low with a class interval of 10.

Table 6
Experimental Class Learning Outcomes Achievement Category (Pre-Test)

No	Score Interval	Category
1	81-90	Higher
2	71-80	Middle
3	60-70	Lower

(Source : Research data processing, 2020)

The achievement category for learning outcomes during the pre-test in the experimental class are based on Table 6, namely: High (Range of values between 81-90), Medium (Range of values between 71-80), and Low (Range of values between 60-70). Visually, the percentage of pre-test results achieved in the experimental class is shown in Picture 2.



Picture 2: Achievement Diagram of Experimental Class Pre-Test Results

(Source : Research data processing, 2020)

The results of pre-test data processing in the experimental class (XI IPS 3), showed that the scores obtained by 10 students (29% of respondents) were in the low category, the scores of 15 students were (42%) in the medium category and the scores for 10 students (29% of respondents) are in the high category. The majority of student learning outcomes in the experimental class were the same as in the control class when the Pre-Test was at middle category. This shows that the two classes that are the research sample have the same characteristics.

Post-Test is carried out after giving the material using the Small Group Discussion method is complete. This second measurement is intended to analyze the effect of the implementation of the Small Group Discussion method on student cognitive learning outcomes. Data processing on the Post-Test in the experimental class resulted in a minimum score of 65, a maximum score of 92.5 and an average of 81.70. Based on this score, the interval class can be determined for each criterion, namely 13.

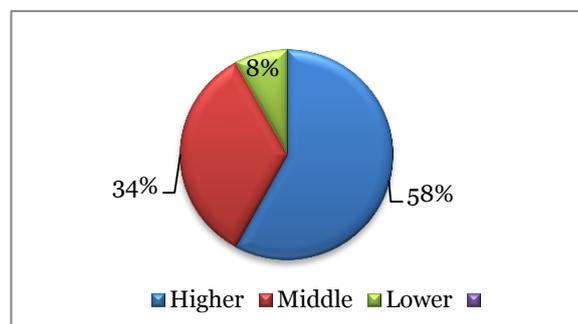
After the class interval is known, the next step is to determine the achievement category for learning outcomes as shown in Table 7.

Table 7
Experimental Class Learning Outcomes Achievement Category (Post-Test)

No	Score Interval	Category
1	83-92	Higher
2	74-82	Middle
3	65-73	Lower

(Source : Research data processing, 2020)

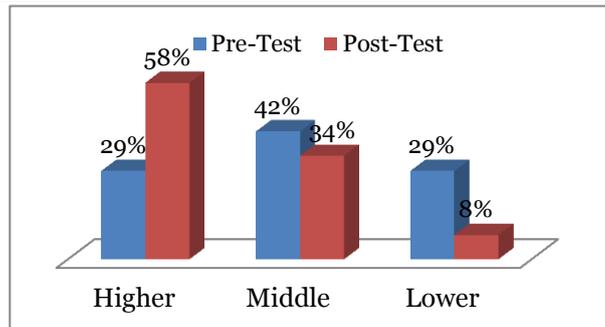
The learning outcomes during the Post-Test in the experimental class based on Table 7 are divided into three category, namely: High (range of values between 83-92), Medium (Range of values between 74-82), and Low (Range of values between 65-73) . After the category for learning outcomes are known, the next step is to make the frequency distribution and the percentage of post-test scores calculated using a simple percentage formula. Visually, the percentage of achievement of the Post-Test results in the experimental class is shown in Picture 3.



Picture 3: Achievement Diagram of Experimental Class Post-Test Results

(Source : Research data processing, 2020)

Based on the diagram in Figure 3, it can be seen that 8% or 3 students who are in the experimental class have learning outcomes in the low category, 34% or 12 students are in the medium category and 58% or 20 students are in the high category. The effect of using the Small Group Discussion method on improving student learning outcomes in the experimental class can be analyzed by comparing the results of the pre-test and post-test. Visually, the comparison of learning outcomes in the experimental class can be seen in Picture 4.



Picture 4: Comparison Chart of Experimental Class Learning Outcomes
(Source : Research data processing, 2020)

The comparison diagram of the Pre-Test and Post Test scores in Figure 4 shows the increase in student learning outcomes in the experimental class. The minimum score during the post test increased from 60 to 65. The maximum score achieved from 90 increased to 92.5 and the average score increased from 75.64 to 81.70. The achievement of these scores has an effect on changes in the overall achievement category for student learning outcomes. Achievement of learning outcomes on the category is low and is experiencing a decline, while the category for high have increased. The learning outcomes with low category were 29% at the pre-test, it changed to 8% at the post-test, and the medium category were 42% at the pre-test, which changed to 34%. Meanwhile, the achievement of learning outcomes at the high category has doubled from 29% at the pre-test to 58% at the post-test.

2.4 Comparison of Learning Outcomes in Control Class and Experiment Class

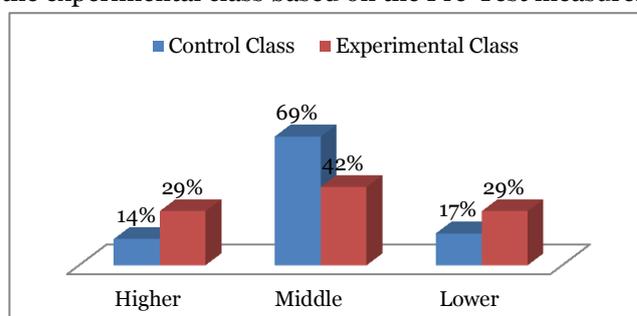
After processing the pre-test and post-test results, the next step is to compare the learning outcomes of the two research classes. The comparison was carried out to analyze the differences in learning outcomes between the control class using the discussion method and the experimental class using the Small Group Discussion learning model. The comparison of the pre-test results between the control class and the experimental class is presented in Table 8.

Table 8
Comparison of Control Class and Experimental Class
Achievement Pre-test Results

No	Category	Control Class		Experimental Class	
		F	Percentage	F	Percentage
1	Higher	5	14%	10	29%
2	Middle	25	69%	15	42%
3	Lower	6	17%	10	29%
Jumlah		N=36	100%	N=35	100%

(Source : Research data processing, 2020)

Table 8 shows the achievement of the Pre-Test results in the two classes that were the research sample. If presented in the form of a diagram, the comparison of student learning outcomes in the control class and the experimental class based on the Pre-Test measurement is shown in Picture 5.



Picture 5: Comparison Diagram of Control Class and Experimental Class Pre-Test Results

(Source : Research data processing, 2020)

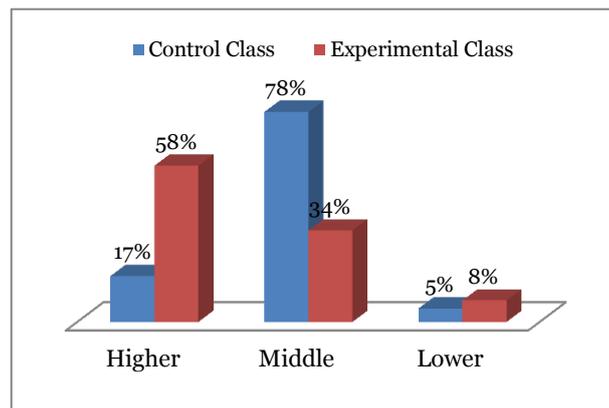
In Figure 5, it can be seen that in the control class the majority of the Pre-Test scores are in the medium category with a percentage of 69%, 17% for low category, and 14% for high category. The achievement of high category in the experimental class was 15% higher than the control class, namely by 29%, and the low category was 12% higher, namely by 29%. Meanwhile, the achievement of learning outcomes on middle category in the experimental class was 27% lower than the control class, namely by 42%. Overall, the pre-test results in the experimental class were the same as the control class, namely the majority of students in both classes had middle learning outcomes. The comparison of the post-test results between the control class and the experimental class is presented in Table 9.

Table 9
Comparison of Post-Test Results for Control Class and Experiment Class

No	Category	Control Class		Eksperimental Class	
		F	Percentage	F	Percentage
1	Higher	6	17%	20	58 %
2	Middle	28	78%	12	34 %
3	Lower	2	5%	3	8 %
Jumlah		N=36	100%	N=35	100%

(Source : Research data processing, 2020)

To simplify the analysis, the results of the Post-Test results in the two classes that were the research samples in Table 9 are presented in the form of a diagram as shown in Picture 6.



Picture 6: Comparison Diagram of Control Class and Experimental Class Post-Test Result Achievement

(Source : Research data processing, 2020)

Figure 6 shows the differences in the learning outcomes of the control and experimental classes after using two different learning methods. The control class using the discussion learning method with group members of more than 5 (five) people, obtained learning outcomes that the majority (78%) were in the medium category. The high category was obtained 17% of students and the rest (5%) had learning outcomes in the low category. Meanwhile, the experimental class using the Small Group Discussion learning method with a maximum of 5 (five) members, obtained the majority of learning outcomes in the high category by 58%. The other two categories respectively 34% (medium category) and 8% (low category).

To find out whether there is a significant difference from the implementation of the use of the small group discussion learning method with the conventional learning model, first the normality test of learning outcomes data must be carried out, namely the post-test for the control class and the experimental class using the SPSS for Windows Versi.20 program and the results can be seen in Table 10.

Table 10
Paired Sample t-Test of Learning Outcomes

Learning Outcomes	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pretest Control Class– posttest Control Class	-3.0556	5.9363	.9894	-5.0641	-1.0470	-3.088	35	.004
Pretest experimental class – Posttest experimental Class	-6.0571	6.9024	1.1667	-8.4282	-3.6861	-5.192	34	.000

(Source : Research data processing, 2020)

Based on the paired sample t-test using SPSS 20.0 for windows, the significance value (Sig) was 0.000. The sig value <0.05 means that H_a is accepted while H_o is rejected, which means that the implementation of the Small Group Discussion learning method has an effect on student cognitive learning outcomes, especially in Geography subjects at SMA Negeri 1 Majalaya, Bandung Regency. Both the small group discussion learning method and the conventional learning method experienced an increase after being given treatment, but the increase in the Post-Test score with the small group discussion learning method was higher than the increase in the Post-Test score with the discussion.

The results of this study are in line with previous research regarding the use of the Small Group Discussion learning method. According to Suarto's research results [7], Audio Visual Media and Small Group Discussion have a positive impact in improving student learning outcomes which is marked by an increase in student learning completeness in each cycle, namely pre-cycle (52.63%), cycle I (73.68). %, cycle II (86.84%).

In addition to contributing to improving student cognitive learning outcomes, learning using the Small Group Discussion method has limitations. During the learning process, some students with limited academic abilities were still unable to explain the problems the teacher offered to discuss during the discussion. Learning activities using the small group discussion method require more time, this happens because the discussion leaves the given topic. Some students who are united with smart students instead rely on their friends to answer or discuss questions given by the teacher, so that these students do not play a role or contribute ideas or ideas in discussion activities.

3. Conclusion

The implementation of the Small Group Discussion learning method on student cognitive learning outcomes, especially in geography subjects in Class XI IPS, SMA Negeri 1 Majalaya can be seen based on the comparison of learning outcomes in the two classes that are the research samples. Achievement of minimum learning outcomes in the control class during the post test has increased in the maximum score achievement from 92 to 97 and the average score from 76.15 to 79.21. Changes in these scores affect the achievement category for learning outcomes. Learning outcomes with middle category down by 9%, and low category decreased from 12%.

In the experimental class, the maximum score achieved from 90 increased to 92.5 and the average score increased from 75.64 to 81.70 during the Post-Test. Changes in these scores affect the overall achievement category for student learning outcomes. Achievement of learning outcomes on the low category fell by 11% and the category were experiencing a decrease of 8%. Meanwhile, the achievement of learning outcomes at high category has increased by 100% during the Post-Test. The decrease in achievement at the low category indicates that there is a change in a positive direction. Implementation of the Small Group Discussion method has an effect on improving geography learning outcomes.

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