

IMPLEMENTATION OF DISCOVERY LEARNING METHODS TO INCREASE ACTIVITY AND LEARNING RESULTS IN BANYUAJUH 2 ELEMENTARY SCHOOL

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ABSTRACT

This study aims to increase the activeness and competence of students in Indonesian class IV subjects at Banyuajuh 2 elementary school through the application of discovery learning methods. This research is a Classroom Action Research (CAR) with the Kemmis and Mc Taggart model which was carried out in two research cycles. The subjects of this study were the fourth grade students of elementary school Banyuajuh 2 for the 2022/2023 academic year, totaling 25 students. Data collection techniques in this study used observation for the implementation of learning and student activity, tests for cognitive competence, and documentation. The success indicator of this research is more than 70% activeness of students and 75% of students reach KKM of 76. The results show that through the application of the Discovery Learning learning method can increase student activity and competence in Indonesian subjects. This can be seen from: (1) an increase in student activity in each cycle. The activeness of students in the first cycle was 31.29%, and the second cycle was 71.83%; (2) an increase in class average and student learning completeness. The average class in the first cycle is 75.74, and the second cycle is 87.33. Students' learning mastery as measured by cognitive competency tests in the first cycle was 60%, and the second cycle was 92%.

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A. Introduction

According to the National Education System Law (Sisdiknas) No. 20 of 2003 education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, as well as the skills needed by himself, society, nation and state. Learning is a process characterized by changes in a person. Changes in the results of the learning process can be shown in various forms including affective, cognitive and psychomotor aspects. Learning activities require active learning, namely with collaborative participation between teachers and students. Active learning is an activity or activity of students in teaching and learning activities at school and outside of school that supports student success (Ulun, 2013). So active learning is a student's effort in developing self-potential through a series of processes of learning activities to achieve learning goals.

Forms of student activity in learning can be seen from the involvement of students in the learning process such as participating in doing assignments, being involved in discussing problem-solving processes, asking friends or teachers if they don't understand the material, and being able to present the results of simple reports. Meanwhile, according to Gagne (Martinis, 2013) the factors that influence active learning are giving encouragement or attracting students' attention, explaining instructional objectives (basic abilities to students), reminding learning competencies to students, providing stimulus (problems, topics and concepts to be studied), giving instructions to students how to learn, bringing up activities, participating in learning activities, giving feedback, conducting short tests at the end of learning, concluding each material presented at the end of learning. According to (Sudjana, 2016) indicators of active learning can be seen from several things, namely: (1) When teaching and learning activities take place students participate in carrying out their learning assignments, (2) Students want to be involved in solving problems in learning activities, (3) Students want to ask friends or the teacher if they don't understand the material or encounter difficulties, (4) Students want to try to find information that can be needed to solve the problems they are facing, (5) Students carry out group discussions according to the teacher's instructions, (6) Students are able to assess their own abilities and the results they obtain, (7) Students practice solving problems or problems, and (7) Students have

the opportunity to use or apply what they have obtained in solving the tasks or problems they face..

Based on the results of observations of the problems found in Banyuajuh 2 elementary school namely: (1) students are less active in learning activities, (2) students are bored with ongoing learning (the teacher does not use learning media when teaching), (3) students do not respond to questions asked by the teacher, (4) Students have not fully understood the material presented, and (5) Lack of application of a learning model that is suitable for student characteristics. Anticipating these problems, in the learning process must use appropriate learning models so that student learning outcomes can increase. The learning strategy expected by researchers is the use of learning models that are able to help students become active, creative, independent, and easily learn concepts so that learning objectives can be achieved. To increase student activity and learning outcomes, one of the learning models that can be applied according to student characteristics is discovery learning.

According to (Hosnan, 2016) discovery learning is a model of developing an active way of learning by obtaining and studying it yourself, so the results obtained can be kept in mind. By using this learning method, students can also learn to think, analyze and solve problems. Furthermore, according to (Hamalik, 2015: 29) discovery learning is a model for developing active student learning methods by finding and investigating, so the results obtained will be long lasting in memory and will not be easily forgotten by students. The discovery learning model is a concept discovery with a series of data or information obtained through observation or experiment (Cahyo, 2013). From the various opinions above, it can be concluded that the characteristics of the discovery learning model include: (1) exploring and solving problems to form, combine, and announce knowledge, (2) focus on students, and (3) activities combining new knowledge and existing knowledge. existed before.

In the application of the discovery learning model, it consists of six main steps: (1) Stimulation, starting the teaching and learning process by asking questions, suggesting reading books, and other learning activities that lead to preparation for problem solving, (2) Problem statements (statement/identification of problems), namely giving students the opportunity to identify as many problem agendas as relevant to the subject matter, then one of them is selected and formulated in the form of a hypothesis (temporary answers to problem questions,

(3) data collection), giving opportunities to students to collect as much relevant information as possible to prove whether the hypothesis is correct or not, (4) Data processing, processing data and information that students have obtained through discussion, observation, and so on and then interpreting it, (5) Verification), that is, to carry out a careful examination to find out Determine whether or not the hypothesis set earlier is related to the results of data processing, (6) Generalization, drawing a conclusion that can be used as a general principle and applies to all events or the same problem, taking into account the results of verification (Shah, 2017).

Based on the observation problems at Banyuajuh 2 Public Elementary School, it can be assumed that the learning has not been maximal. There needs to be appropriate learning improvements to increase student learning activity. The solution to improve this problem is to use an innovative learning model. The discovery learning learning model is a learning model that uses problems in achieving research objectives that will be discussed by researchers, so the action hypotheses in this study are arranged as follows: (1) describe the steps of the syntax of applying discovery learning learning models to increase active learning in grade 4 students Banyuajuh 2 Public Elementary School, (2) increasing the activeness of learning in thematic learning content using the discovery learning model in grade 4 students of Banyuajuh 2 Public Elementary School.

B. Method

This research is a classroom action research. Classroom action research is a way to solve problems in learning through an action by examining social situations, understanding the problems and then finding ways to overcome them which aim to improve and improve the quality of learning. This research was conducted by involving research subjects, namely fourth grade students of Banyuajuh 2 Public Elementary School, totaling 25 people. This research will be carried out in 2 cycles, with each cycle consisting of 4 stages, namely planning, implementing, observing, and reflecting. The data in this study were collected through observation and documentation methods, then the data obtained was analyzed using quantitative and qualitative approaches.

C. Result and Discussion

1. Planning

Pre-cycle activities were carried out when researchers carried out Classroom Action Research Practices (PTK) on August 17 – November 15, 2022. Pre-cycle activities were in the form of initial observations to find out problems found in grade 4 in Indonesian. Researchers made observations of the course of learning and conducted interviews with supporting teachers to gather information. Based on the results of observations found several problems in learning. The first problem is that the Mid Semester Assessment (PTS) score in grade 4 shows unsatisfactory results. The second problem is that the implementation of learning is not in accordance with the Learning Implementation Plan (RPP), where in the RPP the learning method used is written discovery learning method, but in practice the method used is the lecture method. The third problem is that students are less active in participating in learning. Before conducting research, researchers prepare everything needed in the implementation of research activities. Some of them are:

- a. Choosing the discovery learning method as a learning method
- b. Determine the material for the discovery learning method
- c. Develop syllabus
- d. Developing Learning Implementation Plans (RPP)
- e. Composing Instruments
- f. Collecting data on students' cognitive competency values
- g. Arrange Research Schedule

2. Implementation

At this stage of implementation, it is divided into 2 cycles. The following is an explanation of each cycle:

a. Cycle I

Cycle I was held on Monday, 10 October 2022 at 07.00-11.00 in class 4 of Banyuajuh 2 elementary school with 25 students present. The basic competencies delivered in this cycle are regarding the meaning of advertising and examples of advertisements. At this stage, there are two data obtained, namely data on student activity and cognitive learning outcomes. Following are the results of student activity data when given action in cycle I:

Table 1. Results of Observation of Student Activity in Cycle I

No	Students	Number of Appearing Indicators
1	AFU	7
2	ADC	7
3	APP	12

4	BDP	10
5	DBS	16
6	EYH	9
7	FRRE	10
8	FAS	6
9	GPSA	2
10	MMDJ	7
11	MAKA	9
12	MAO	11
13	MB	4
14	MDD	7
15	MMI	7
16	MMA	8
17	MRM	8
18	NA	8
19	NAM	5
20	WAN	6
21	WYR	9
22	YIN	6
23	YKM	10
24	ZAR	4
25	ZARS	6
Amount		194

From the calculation above it can be seen that the percentage of student activity is 31.29%. This shows the activeness of students is still classified as "very less". This is compared with the criteria for research success, namely student activity fulfills the "good" criteria if the percentage of student activity is above 70%.

In this case the observed activities include visual activities, oral activities, listening activities, writing activities, drawing activities, motor activities, mental activities and emotional activities. Students tend to have weaknesses in mental activities, namely analyzing material during discussions. There were only three students who analyzed the subject matter and none of the students drew about the subject matter. It is suspected that students rely on friends in a group and have found the material they are looking for, so they are less enthusiastic about analyzing material collected from several learning sources.

In oral activities, only seven students asked the teacher about learning material. In the oral activities, there were seven students who asked friends during the discussion session. In the oral activities, there were seven students who expressed opinions during discussions, while in the oral activities, there were twelve students who responded to the teacher when giving questions. The few students who asked the teacher allegedly because students were confused about what should be asked so students chose to be silent and just listen to

what other students asked the teacher. To ask friends is still a little suspected because students still doubt the answers of friends and may still not understand what will be asked. There are still students who do not respond to the teacher when asking questions, presumably because they are busy with their work. In the visual activities that paid attention to the teacher, there were twenty six students. In the visual activities that paid attention to other groups during presentations, there were twelve students. On visual activities that pay attention to the person talking.

Then in the visual activities that read references to subject matter as many as seven students. Most of the students had paid attention to the teacher when delivering the subject matter, it's just that there were still some who had not paid attention and chatted with other friends or were busy playing alone. At the time of the presentation, only a few students paid attention to the advanced group, this was suspected by the students chatting in the back with other students. During the discussion session, students who paid attention to their friends who were talking were still half of all students in the class, it was suspected that students were less focused in participating in group discussions during the discovery process. Then there are still very few students who read textbooks, it is suspected that students trust more in a group of friends who read books and prefer to get answers from friends rather than reading themselves.

In listening activities, twenty-five students listened to the teacher while explaining. In listening activities, there were twelve students listening to other groups during presentations. Then, in listening activities, there were twelve students listening to friends talk during discussions. When the teacher delivered the material most of the students had listened, but there were still some students who were busy with their own activities. When the presentation session was still half the number of students in the class did not listen to the group presenting, it was suspected that the students were busy with their own activities behind them. Then during the group discussion session many students did not listen to friends who were talking, this was suspected by the students not being focused on following the discussion for discovery.

In writing activities, which record subject matter, there are nine students. It is suspected that students are lazy to take notes because the material is already in their textbooks. Then in writing activities which summarize the material from the discussion as many as eight students. This includes a few and

it is suspected that students rely more on other students in the group to make summaries.

In the motor activities, which arranged tables and chairs for discussions, there were twenty-five students. This shows good student enthusiasm to prepare for the necessary discussions. Then in the motor activities which select the material in the book according to the discussion as many as sixteen students, this is half of the number of students in the class. It is suspected that many students still depend on other students, so that the interest in finding material is lacking.

In mental activities related to student participation in solving problems in discussions, there were seventeen students. This shows the enthusiasm of students during discussions when the discovery process is lacking. Meanwhile, in emotional activities, half of the students take part in the discovery process well, others may be less enthusiastic so they don't respond. At least students on this indicator suspected that other students did not express their opinions or when they argued there were no students who gave rebuttals.

In this cycle also obtained cognitive outcome data. The data was obtained from the results of the posttest which was carried out at the end of cycle I. The following is the cognitive outcome data obtained, namely:

Tabel 2. Students' Cognitive Competency Value in Cycle I

Cognitive Value of Cycle I Students	Score
Lowest Value	60
The highest score	88
Number of Completed Students	15
Number of Students Not Completed	10
Average	75,74
Completeness Presentation (%)	60%

Based on the table above, it can be seen that the value of students' cognitive competence in cycle I shows an average value of 75.74. The lowest score is 60 and the highest score is 88. The percentage of completeness is 60% where as many as 15 students are included in the complete student category or with scores above 76. Meanwhile, as many as 10 students are in the incomplete student category or with scores below 76. Based on table 2 regarding competency scores Cognitive cycle I students can be described in the diagram as follows:

Table 3. Average Cognitive Value of Pre-Cycle and Cycle I

Cycle	Score
Pracycle	67,3
Cycle I	75,74

Based on the table, it can be seen that the use of discovery learning methods in learning can improve students' cognitive competence. This is indicated by the increasing value after giving the action. The average value of the class before the action is 67.3. Then given the action in the first cycle the average class value changed to 75.74. After doing cycle I there was an increase of 8.44 in students' cognitive scores.

Table 4: Percentage of Completeness of Pre-cycle and Cycle I Stages

Cycle	Percentage (%)
Pracycle	12,9
Cycle I	60

In the picture above it can be explained that the percentage of completeness in the pre-cycle was 12.9%. Then given action for 1 meeting using the discovery learning learning method increased to 60%. Increasing the average value and percentage of completeness can be indicated that students with the application of discovery learning learning methods can begin to understand the subject matter provided. But the indicators of the success of class action have not been achieved. This is due to several reasons, including:

- 1) Some students looked unfocused and not active in discussion and question and answer activities
- 2) Students are still not familiar with the discovery learning method.
- 3) The entire action plan in cycle I was not fully carried out because class time was almost over

Of the several deficiencies in cycle I which caused the target of success of this research not to be achieved, the researchers formulated several things that had to be corrected and carried out in cycle II, some of which were:

- 1) Set time efficiency during learning, so that the time duration of each step in the discovery learning learning method does not exceed the predetermined time limit and use time for other steps. So that the steps of the discovery learning method can be carried out without exceeding the specified time limit.

- 2) Prepare teachers more maturely, by ensuring teachers fully understand each step of the discovery learning method and can arouse students' interest in learning and concentration

Because the target of success has not been achieved, the researchers repeated cycle II. This is in accordance with what was conveyed by (Mulyatiningsih, 2015), that repetition of cycles can be carried out in classroom action research if the target of research success has not been achieved, and there are several things that cannot be done optimally in the previous cycle, so that in the next cycle improvements can be made improvement to be able to achieve the target of success.

b. Cycle II

Cycle II was held on Monday, October 24 2022 in class 4 of Banyuajuh elementary school 2 with 25 students present. Following are the results of student activity data when given action in cycle II:

Table 5. Observation Results of Student Activeness in Cycle II

No	Students	Number of Appearing Indicators
1	AFU	19
2	ADC	19
3	APP	18
4	BDP	18
5	DBS	18
6	EYH	18
7	FRRE	19
8	FAS	19
9	GPSA	19
10	MMDJ	19
11	MAKA	17
12	MAO	17
13	MB	17
14	MDD	17
15	MMI	16
16	MMA	17
17	MRM	17
18	NA	19
19	NAM	19
20	WAN	19
21	WYR	15
22	16	6
23	18	10
24	19	4
25	19	6
Amount		431

From the calculation above it can be seen that the percentage of student activity is 71.83%. This shows that student activity has increased in cycle II, compared to cycle I, student activity at 31.29%. Achievement of the percentage

of student activity has been achieved in cycle II, where student activity has entered the "good" criteria as shown by the percentage of student activity in the range of 70% -79%. In this case the observed activities include visual activities, oral activities, listening activities, writing activities, drawing activities, motor activities, mental activities and emotional activities.

In visual activities there is an increase in each indicator. To pay attention to the teacher who was explaining as many as twenty seven students. To pay attention to other groups when presenting as many as twenty-four students. To pay attention to friends who spoke during the discussion as many as twenty five students. Then to read books/references from the subject matter as many as twenty two students. This increase in visual activities was caused by the increasing enthusiasm of students to take part in learning, because students were able to adapt to learning using the discovery learning method. The oral activities also experienced an increase compared to the previous cycle. To ask the teacher increased to seventeen students. To ask a friend when the discussion increased to twenty four students. To express opinions during discussions as many as twenty nine students. Then to respond to the teacher's questions as many as fourteen students. This increase occurred because at the previous meeting they had been told what would be learned, so that students could read the material. That way students already have the provision to take part in learning and can be more active when learning takes place.

In listening activities also increased in cycle II. To listen to the teacher when explaining as many as twenty eight students. To listen to other groups during presentations as many as two five four students. Then to listen to other students talk during discussions as many as twenty eight students. This increase in listening activities was caused by students being more enthusiastic in participating in learning compared to the previous cycle. This is because students are familiar with the use of discovery learning methods.

The writing activities also experienced an increase compared to the previous cycle. To record the subject matter for eighteen students and to make a summary of the results of the discussion for twelve students. However, this increase has not been maximized because it is still less than half of the number of students. It is suspected that students already have material data in their reference books so they are lazy to re-record. The motor activities also experienced an increase compared to the previous cycle. Twenty-one students

to arrange tables/chairs for discussion and twenty-five students to choose the material in the book according to what was discussed. This is because students are more enthusiastic about participating in learning because they already understand the implementation of the discovery learning method. The mental activities also experienced an increase compared to the previous cycle, where twenty-five students took part in analyzing the material. Then students participate in solving problems in the discovery session of twenty six students. This increase was due to students being more enthusiastic in participating in the discovery process because students already had prior knowledge.

Then in emotional activities the increase also occurred. The increase in response to the material being studied is twenty-five students. In accepting the rebuttal of the opinions of other students as many as twenty two students. This increase in emotional activities is caused by students who are more active in participating in learning and there are already many students who think. Based on the data obtained from cycle II, each indicator has experienced an increase. So that it can be said that student-centered learning has been successful. That way the learning objectives have been achieved in cycle II, the research can be stopped in cycle II because it has reached the predetermined indicator criteria. The following are the results of students' cognitive competency tests in cycle II:

Tabel 6. Students' Cognitive Competency Value in Cycle II

Cognitive Value of Cycle I Students	Score
Lowest Value	72
The highest score	96
Number of Completed Students	23
Number of Students Not Completed	2
Average	87.33
Completeness Presentation (%)	92%

Based on the table above, it can be seen that the cognitive competency scores of students in cycle II showed an average score of 87.33 out of 25 students who took the test. The lowest score was 72 and the highest score was 96. The percentage of completeness reached 92% where as many as 23 students were included in the complete student category or with scores above 76. Meanwhile, 2 students were in the incomplete student category or with scores below 76.

Based on research that has been conducted for two cycles, different results are obtained in each cycle. In cycle I, the proportion of student activity reached 29.5%. Then in cycle II the proportion of completeness increased to

79.2%. This research is in accordance with research conducted by Irawan (2017) which revealed that the use of discovery learning can increase student activity. The following table increases in each cycle:

Table 7. Table of Student Activity Percentage

Cycle	Percentage (%)
Cycle I	29,5
Cycle II	79,2

The following table shows the increase in the value of students' cognitive competence in general from the pre-cycle stage to cycle II, namely:

Table 8. Increasing the Value of Students' Cognitive Competence

Student Cognitive Value	Precycle	Cycle I	Cycle II
Lowest Value	53	60	72
The highest score	80	88	96
Number of Completed Students	4	21	28
Number of Students Not Completed	27	10	2
Average	67.3	75,74	87,33
Completeness Presentation (%)	12,9	60	92

Based on the table above, the pre-cycle before being given treatment, the post-test which was attended by 25 students as many as 21 students had not completed and 4 students had completed with the highest score of 80 and the lowest score of 53. In the first cycle which was given treatment, the post-test which was followed by 25 students was 10 students have not completed and 21 students have completed with the highest score of 88 and the lowest 60. Then in cycle II given the action, the posttest followed by 25 as many as 2 students have not completed and 28 students have completed with the highest score of 96 and the lowest 72.

It can be seen that the average grade 5 cognitive competency score in the pre-cycle was 67.3, then there was an increase in cycle I to 75.74 and it increased again in cycle 2 to 81.1. In pre cycle to cycle I there was an increase of 8.44, while in cycle I to cycle II there was an increase of 5.36. Based on the picture above, it can be seen that the percentage of passing in the pre-cycle was 12.9%, then after being given treatment in cycle I it increased to 60%, and given treatment in cycle II it increased to 92%. In the pre cycle to cycle I there was an increase of 47.1%. Meanwhile, in cycle I to cycle II there was an increase of 32%. Based on data in cycle II with an average class score of 87.33 and a passing percentage of 92%, it means that the indicator of success has been achieved. So that research is sufficient in cycle II and it can be said that the use of discovery learning learning methods can increase the value of students'

cognitive competence. This research is in accordance with research conducted by (Nasrullah, 2016) which revealed that the use of discovery learning can improve students' cognitive competence. In addition, this research is also in line with research conducted by (Farhatani, 2014) which states that the use of the discovery learning method can improve students' competence in the cognitive aspect.

D. Conclusion

Based on the results of the action research that has been carried out in Indonesian subjects, it can be concluded as follows:

1. The use of the discovery learning method can increase the activity of grade 4 students at Banyuajuh 2 elementary school in Indonesian language subjects. An increase in student activity is indicated by an increase in the percentage of student learning activity. In cycle I, the percentage of student activity reached 31.29%. Then when it was continued in cycle II, the percentage of student activity increased to 71.83%. This shows that the percentage of student activity has increased and achieved predetermined indicators of success.
2. The use of discovery learning learning methods can improve the cognitive competence of grade 4 students at Banyuajuh 2 elementary school in Indonesian. The increase in students' cognitive competence can be seen in the average class scores and the increase in the percentage of completeness after being given treatment. Before being given the action the average class score reached 67.3 and the percentage of completeness reached 12.9%. In cycle I, the average class score reached 75.74 and the percentage of completeness reached 60%. Then in cycle II the average class value reached 87.33 and the percentage of completeness reached 92%.

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