

Discovery Learning to Improve English Achievement: A Classroom Action Research to the Seventh Graders of SMPN 1 Kedung Jepara

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Abstract

This study aims to describe the Discovery Learning Model (DL) to improve the English achievement. The problem is whether the application of DL can improve the English achievement of the seventh graders of SMPN 1 Kedung Jepara. This research applied classroom action research conducted in two cycles, each of which consisted of four stages: planning, implementing, observing and reflecting. Participants of this study were 36 students, consisting of 20 (55%) girls and 16 (45%) boys. Indicators of success are set when at least 75% of students achieve mastery learning after the applied DL. Results show (1) the average learning achievement in the first cycle was 7.07 and 8.62 in the second cycle the cycle; (2) the mastery learning in the first cycle was achieved by 19 (52.78%) students, and 17 students or 47.22% of incomplete; and (3) completeness of classical learning in cycle I was 52.78% and 100% in cycle II. This means that the results of the second cycle are better than the first cycle. There is also evidence that students activity in the learning process, both individually and in groups increase substantially. Other findings show that the response of the students towards the implementation of DL was 81.81% that indicates very strong agreement.

Keywords: discovery learning, action research.

1. INTRODUCTION

Learning methods have a very important role in teaching and learning of foreign languages. The use of appropriate English teaching methods can help students achieve the best performance. Vice versa, students can feel bored learning English if the methods used are less effective (Burns & Ellis, 1970).

The students find it difficult to learn if they do not have basic provisions of a foreign language, especially at the beginner levels, so that the use of native language students cannot be avoided. Thus the purpose of all of these methods to read and converse always in a foreign language is difficult to apply purely, but must be applied consistently. In general students and teachers behave traditionally prioritizing grammar first rather than reading and conversing something which is naturally wrong which very needs to be changed. In general, the teaching of foreign languages in our schools is felt to be lacking in the kinds of media/teaching aids needed; which teachers should actively make.

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Teachers who lack practical ability and experience in foreign languages are factors that are difficult to apply and work well with the method. The teacher must be an active person speaking in the foreign language, and then his students will be able to also be active in learning (practice) languages.

In the 2013 Curriculum Development draft it is implied that the desired learning process is learning that emphasizes personal experiences through observation (listening, seeing, reading, listening), associations, asking questions, concluding, and communicating. It was also mentioned, that the desired learning process learning process that is centered on students (students centered active learning) with a contextual learning nature (Directorate of Higher Education, 2015).

Learning is essentially reading, reading texts, reading conditions, reading conditions, reading problems, reading experiences and at the same time finding a way out of the experiences and problems encountered. Reading is the main pillar in learning. Teachers are required to have a learning model that can stimulate the enthusiasm of each students to be actively involved in their learning experiences, for example with the learning model of disclosure (Discovery Learning, henceforth DL). This model gives students the opportunity to reveal or find out about a problem or something that actually exists but has not come up and found a solution based on the results of processing information that is sought and collected by them, so students have new knowledge that can be used in solving relevant problems in life every day (Burns & Ellis, 1970; Saab et al., 2005).

The DL is another name for discovery learning. As the name implies, this model directs students to be able to find something through the learning process that they do. Students are trained to become accustomed to being scientists. They are not only consumers, but are also expected to play an active role, even as actors of the creators of science

This disclosure learning model is part of the scientific approach framework. The students are not only given a number of theories (deductive approach), but they are also dealing with a number of facts (inductive approach). From the theories and facts, they are expected to formulate a number of disclosures (Yuliatun et al., 2017).

The form of disclosure in question is not always identical to a theory or thing as is usually done by scientists and professionals in the real sense. Disclosure in question also means something simple, but has meaning with the lives of the students themselves. Disclosure is still based on the basic competencies (KD) that exist in the curriculum.

The different problems in SMP Negeri 1 Kedung Jepara are that the students' achievement tends to be static and stagnant and even decreased. This problem occurs because there is no motivation to learn students, as a result of the application of learning models that are less precise, monotonous, and there is no variation in the learning process, giving rise to the impression of boredom and boredom in students. As a result, the students' achievement do not increase.

The objectives of this study are: (1) To find out whether the DL can improve English learning achievement and (2) to find out whether the DL can increase the

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activity of Grade VII students of Kedung Jepara Middle School in the Even Semester 2019 Academic Year/ 2020.

2. LITERATURE REVIEW

2.1 Learning Model Development

The scientific approach is the general structure of the whole learning process which is the process of the 2013 curriculum. As for its development, the teacher can fill it with several learning models. There are three types of learning models suggested by the 2013 curriculum, namely the disclosure learning model, the PjBL, and the project based learning model (Sobari & Husnussalam, 2019).

The three learning models are still carried out within the framework of a scientific approach, which begins with observing an object or source of learning and ends with communicating/creating activities. The difference between the three lies in its purpose. Disclosure learning model aims to find understanding, characteristics, differences, similarities of an object, concept, or other learning objects (Burns & Ellis, 1970).

2.2 Discovery Learning Model (DL)

The disclosure learning model is another name for DL. As the name implies, this model directs students to be able to find something through the learning process that they do. Students are trained to become accustomed to being scientists. They are not only consumers, but are also expected to play an active role, even as actors of the creators of science.

DL defined as a learning process that occurs when students are not presented with lessons in their final form, but are expected to organize themselves. As Bruner argues, that: "Discovery Learning can be defined as the learning that takes place when the students is not presented with subject matter in the final form, but rather is required to organize itself himself" (Emetembun, 2016). Bruner's basic idea is the opinion of Piaget which states that children must play an active role in learning in the classroom.

This model gives students the opportunity to reveal or find out about a problem or something that actually exists but has not come up and found a solution based on the results of processing information that is sought and collected themselves, so students have new knowledge that can be used in solving relevant problems in life everyday (Directorate of High School Development, 2017:11).

DL is an understanding concepts, meanings, and relationships, through an intuitive process to finally arrive at a conclusion (Budiningsih, 2005). Discovery occurs when individuals are involved, especially in the use of mental processes to find several concepts and principles. Discovery is done through observation, classification, measurement, prediction, determination and inference. The process is called cognitive process while discovery itself is the mental process of assimilation concepts and principles in the mind (Malik, 2001).

Learning the discovery of this model is part of the scientific approach framework. Students are not only given a number of theories (deductive approach), but

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they are also dealing with a number of facts (inductive approach). From that theory and facts, they are expected to formulate a number of findings (Widyastuti, 2014).

The form of the invention in question is not always identical to a theory or object as is usually done by scientists and professionals in the real sense. The discovery in question means something simple, but it has a meaning to the lives of the students themselves. The findings are still based on competence-basic competencies (KD) that exist in the curriculum. In line with the discovery learning model, it is also known as inquiry learning. Both are discovery-based learning models. The difference of learning over the cover is to emphasize on finding answers to problems engineered by the teacher. As for inquiry learning the problem is not the result of engineering the problem was born from the students themselves based on their daily experiences (Amyani dkk, 2018).

Both DL and inquiry encourage students to play a creative and critical role. The role of the teacher is no longer as a supplier of knowledge. Teachers pay more attention to the growth and cognitive development and creativity of students. The teacher acts as a motivator, facilitator, learning manager is expected. This kind of learning process is often referred to as students-centered with the aim of learning to develop students' competencies and help students develop their self-concept.

- a. Motivator, which encourages students to want to think and work hard to be able to learn well. They appear confident that they are able to find something important and useful.
- b. Facilitator, which is a provider of learning resources needed by students in realizing their findings. The intended learning resources can be in the form of various reference materials or learning environments that are appropriate to the learning context.
- c. Learning managers, namely arranging relationships between students and the learning plans that they will play, for example by pairing up, discussing groups, and visiting certain places so that their activities take place effectively (Basiradanuwijaya et al., 2016).

In addition, the teacher acts as a guide by providing opportunities for students to learn actively. Teaching and learning activities take place from teacher-oriented to students-oriented. In this case students carry out various activities to gather information, compare, categorize, analyze, integrate, reorganize materials, and make conclusions as a product of their findings.

The intended discovery can be in the form of theories, formulas, understandings, characteristics, differences, similarities, examples, and other materials that are new and are something that is useful for students. The forms of discovery also depend on the KD that is being developed by the teacher. By looking at the KD formulation, the teacher must be able to determine the form of discovery that students must make (Yuliatun et al., 2017). In summary, the flow of learning activities for DL is as follows:

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- a. Stimulus (Stimulation): teachers provide stimulus issue to be observed and listened to the students through reading, watching the situation or see the gambit, and others;
- b. Identifying problems (Problem Statement): students find problems, look for information related to problems, and formulate problems;
- c. Collecting data (Data Collecting): students look for and collect data / information that can be used to find solutions to the problems faced (finding or formulating various alternative solutions to problems, especially if one alternative fails);
- d. Processing data (Data Processing): students try and explore the ability of conceptual knowledge to be applied to real life (practicing logical thinking and applicative skills);
- e. Verify (Verification): students check the truth or validity of the data processing through various activities, or search for relevant sources either from books or media, and associate it so that it becomes a conclusion;
- f. Concluding (Generalization): students are led to generalize the results in the form of conclusions on an event or problem that is being studied (Emetembun, 2016).

3. METHODS

This class action research was carried out in 3 months, starting from March to May in the Even semester of the 2019/2020 Academic Year, starting from initial observation, planning, cycle I implementation, cycle II implementation, and report preparation. For more details, this class action research time can be seen in the following table. This research was conducted on 30 students of grade VII of SMP Negeri 1 Kedung Jepara in the Even Semester of the 2019/2020 Academic Year (Pelton, 2010).

This research method is in the form of classroom action research that was carried out in several cycles. Each cycle consists of planning, implementing, observing and reflecting. The results of the study emphasize the ability of students to work on learning evaluation questions so that learning achievement and learning completeness can be achieved. Data sources are students, Researchers/Teachers (the researchers themselves). Types of data are in the form of qualitative data and quantitative data. Qualitative data are in the form of observations activities by the Researchers/Teachers, through observation sheets of Researchers/Teachers and students' activity through observation sheets. Quantitative data are in the form of observations about students' cognitive abilities from the results of the evaluation. Data collection was carried out using the questionnaire, observation, and test methods. Data about students responses to the application of the learning model, obtained from students questionnaires. Data about the results of observations on the implementation of research used to determine students activities during the learning process, obtained from students' observation sheets. Data on the value of learning achievement after learning with the learning model, while the test is in the form of a question description (Sugiyono, 2006).

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To find out how much the activeness of students in following the learning process, then this analysis is carried out on the results of evaluation instruments using descriptive techniques through percentages (Ali, 2004). Data about learning outcomes is taken from the cognitive abilities of students in solving problems analyzed by calculating the average value of classical mastery learning. Class success can be seen from the number of students who are able to complete or reach a minimum of 65% at least 80% of the number of students in the class.

The data of students' interest in this study are used to determine student's responses in learning through DL with the criteria for evaluating the answers to students' questionnaire on learning. To know the success of increasing students learning outcomes on cognitive abilities (learning achievement) by applying DL, it can be seen from the indicators of success, namely: (1) The ability of students to answer questions about evaluating learning material can increase with values above 7.5 achieving at least 80% of the total number of students; (2) The activeness of students in the learning process can increase with a score of between 60%-75% achieving moderate effectiveness; and (3) The activeness/performance of the researcher/ teacher in carrying out learning in the classroom as seen from the observation sheet of the researcher/teacher activity is increasing.

In order for the students of class VII grade students of SMP Negeri 1 Kedung Jepara Semester Academic Year 2019/2020 in English lessons can be increased, so in this class action research, conducted by the teacher (researcher) by applying DL will be carried out with several cycles until achieving the expected level of success. The flow in this classroom action research consists of 4 series of activities carried out in a repetitive cycle (Cycle I and Cycle II). Four main activities in each cycle are planning, action, observation and reflection. Data taken from: (1) students achievement data taken from the evaluation results; (2) data about the learning process at the time the action is taken with the students observation sheet; (3) reflection data and changes that occur in class are taken from observations and evaluation results; (4) data on the ability and skills of Researchers/Teachers in carrying out teaching and learning activities with the learning model applied, using teacher/researcher observation sheets.

4. RESULTS

4.1 Research Preparation

In conducting research it is necessary to hold research preparations so that the results achieved are truly optimal. Some things that researchers need to do before conducting research is as follows:

- Conduct observations to identify problems through interviews with fellow subject teachers.
- The researcher asked the principal for permission to conduct research.
- Determine the class chosen as the subject of research based on the consideration of fellow subject teachers.

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- Make research instruments in the form of lesson plans, teacher observation sheets, students' activity observation sheets, worksheets and evaluation questions.
- Develop students' interest questionnaires on the DL.

4.2 Research Implementation

The study was designed in several cycles, each cycle consisting of four stages, namely planning, action, observation and reflection. When it reaches the expected results, the cycle is considered sufficient.

4.2.1 Cycle I

a. Planning

- Researchers/Teachers plan the DL by making a learning plan.
- Prepare worksheets for students that will be used to complete evaluation questions.
- Prepare an observation sheet.
- Observation sheets include teacher activity observation sheets and students' activity observation sheets.
- Researchers/Teachers prepare evaluation questions. The evaluation questions given to students are evaluation questions after the application of the learning model.

b. Implementation

- Researchers/Teachers explain the material in accordance with the learning plan that refers to the DL.
- The researcher/teacher divides students into groups.
- The researcher/teacher gives questions to each group.
- Researchers/Teachers distribute worksheets in the form of steps in completing evaluation questions.
- Students conduct group discussions to solve the evaluation questions.
- Researchers/Teachers go around guiding, supervising and helping students who have difficulty solving evaluation questions.
- Researchers/Teachers motivate students to have discussions in groups to find as much information as possible in solving the problems given.
- The researcher/teacher invites one group representative to come forward and present their work in front of the class.
- Other students pay attention and may ask if there is anything unclear.
- Researchers/Teachers evaluate the results of their work.
- Researchers/Teachers provide evaluation questions.

c. Observation

The students' activities in groups during the learning process in cycle I obtained the following results:

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Table 1 Students Activity in Cycle Group I

No	Students Activities	Score	%	Note
1	A. Pay attention to teacher explanation	76	53%	fair
2	B. Cooperation in groups	83	58%	fair
3	C. Asking among the students and to the teacher	84	58%	fair
4	D. Active solving problems	91	63%	fair
5	E. Students' presentation ability	109	76%	fair

- The activeness of individual students in the first cycle in participating in teaching and learning activities using the learning model is DL is still low, obtained a score of 19 from a maximum score of 30 with a percentage of 63.33%.
- Activities /performance of Researchers/Teachers during the learning process in the first cycle obtained a score of 23 or 58.97% of the maximum score of 39 with the criteria of learning "sufficient" in delivering the material, and at the beginning of the lesson less able to motivate students so that in the learning process students activity is still lacking.

The evaluation of the first cycle obtained the following results:

Table 2 Evaluation of Cycle I

No	Evaluation Results	Score	%
1	Average	7,07	70,67%
2	Highest Value	8,40	
3	Lowest Value of	5,20	
4	Number of students who completed	19	52,78%
5	Number of students who did not complete	17	47,22%
6	Classical completeness		52,78%

Because the percentage of completeness in classical learning has only reached 52.78%, it has not met the expected results of the mastery / success indicator.

d. Reflection

After observing the learning actions, further reflection is taken of the actions that have been carried out. In the activities of the first cycle, the results of reflection are as follows:

- During the discussion the researcher/teacher monitored the work of each group, but it was still not optimal and the guidance provided by the teacher to the group was not evenly distributed, so some groups were unable to complete the evaluation questions properly. Individual guidance is also lacking in attention, so

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there are students who are not involved in solving evaluation questions. If done more optimally, the teacher will know the characteristics and weaknesses of students, so students can understand the learning material at that time.

- Researchers/Teachers in providing motivation to students in the model process are DL still not optimal.
- Students attention to teacher explanation is still low.
- In working on questions students are still less active.
- During group work students are less able to interact with other students.
- The students are still reluctant to make presentations. Students still point at each other to make a presentation in front of the class.
- The attitude of students in paying attention to the presentation and opinions of friends is still lacking.
- Quiet class in learning is still not good or there are still many who are busy alone.

The results of the evaluation in the first cycle obtained the following results: the highest value of 8.40; the lowest value of 5.2; an average value of 7.07; students who finished learning as many as 19 students or 52.78%; and students who did not complete the study as many as 17 students or 47.22%; and classical learning completeness 52.78%. From the results of the first cycle, it means that the learning process has not been successful or has not met the classical mastery learning criteria. Therefore, it is necessary to improve the actions that will be taken in cycle II.

4.2.2 Cycle II

a. Planning

Based on the problems that arise in cycle I, the researcher plans the DL on the subject matter by making a learning plan.

- Arrange worksheets for students. Worksheets given to students are used to solve problems.
- Compile observation sheets that will be used by researchers to observe students and teacher communication activities in learning by using DL.
- Compile evaluation questions.

b. Implementation

- Researcher/Teacher explains the material in accordance with the learning plan that refers to DL.
- The researcher / teacher divide students into groups.
- Researchers/Teachers give questions to each group.
- Researchers/Teachers distribute worksheets in the form of steps in solving problems.
- Students solve problems in groups.

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- Researchers/Teachers walk around guiding, supervising and helping students who have difficulty solving problems.
- Researchers/Teachers motivate students to have discussions in groups to find as much information as possible in solving the problems given.
- Researchers/Teachers invite one of the group representatives to come forward and present their work in front of the class.
- Other students pay attention and may ask if there is anything unclear.
- Researchers/Teachers evaluate the results of students work.
- Researchers/Teachers provide evaluation questions.

c. Observation

Based on observations of group activities in cycle II the following results are obtained:

Table 3 Students Activity in Cycle II Groups

No	Students Activities	Score	%	Remarks
1	A. Pay attention to teacher explanation	134	93%	High
2	B. Cooperation in groups	137	95%	High
3	C. Asking among the students and to the teacher	129	90%	High
4	D. Active solving problems	130	90%	High
5	E. Students' presentation ability	131	91%	High

- The individual activities in cycle II in participating in teaching and learning activities using DL can achieve activity "high", obtained a score of 28 or 93.33% of the maximum score of 30.
- Activities /performance of Researchers/Teachers in the second cycle during the learning process, obtained a score of 38 or 97.44% of the maximum score of 39 with criteria "good".

The results of the evaluation in the second cycle obtained the following results:

Table 4 Evaluation of Cycle II

No	Evaluation Results	Score	%
1	Average	8.62	86.22%
2	Highest Value	9.20	
3	Lowest Value of	7.60	
4	Number of students who completed	36	100%
5	Number of students who did not complete	0	
6	Classical completeness		100%

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Because classical completeness has reached 100.00% (this is in accordance with the criteria to be achieved and has met the indicators of mastery learning), it does not need to be continued in the next cycle.

d. Reflection

- During the discussion the researcher/teacher monitors the activities of each group is maximal, and the guidance carried out by the teacher towards each group is evenly distributed, so that several groups can solve the problem well. Individual guidance has been considered, so that all students are actively involved in solving problems.
- Researchers/Teachers in growing students motivation in the DL are good and optimal.
- Students' attention to teacher explanations has increased and is evenly distributed.
- In working on problems students are active.
- During group work students can interact well with other students.
- Students no longer feel ashamed to make a presentation.
- Students' attitudes in paying attention to presentations and peers' opinions have improved.
- Class condition in learning is good.

The results of observations in the second cycle are known that students activity can be categorized as "high", obtained a score of 28 or 93.33% of the maximum score of 30 and has met the established indicators of success. Meanwhile, the performance of teachers is included in the category of "high", with a score of 38 or 97.44%. This increase is due to the ability of teachers to motivate and foster interaction between students better than in cycle I. From the results of the students competency test in cycle II obtained the highest value of 9.20; the lowest value is 7.6; and an average value of 8.62. There are 36 or 100% complete students studying and none of them are complete. This shows an increase compared to the first cycle, thus there is no need for a third cycle.

4.2.3 Comparison of Cycle I and Cycle II

Based on the description above, it can be made a comparison table of cycle I and cycle II as follows:

a. Comparison of Students Activities in Groups

Table 5 Comparison of Students Activities in Groups

No		Students Activity	Cycle I	Cycle II	Remarks
1	A.	Pay attention to teacher explanation	53%	93,06%	Increase
2	B.	Collaboration in groups	58%	95,14%	Increase

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3	C.	Ask among students and to the teacher	58%	89,58%	Increase
4	D.	Activity Solving problems	63%	90,28%	Increase
5	E.	Students' presentation ability	76%	90,97%	Increase

b. Cumulative Comparison

Table 6 Cumulative Comparison of Cycle I and Cycle II

No	Indicators	Cycle I	Cycle II
1	Students activeness	63%	93%
2	Activity in groups	62%	92%
3	Students average score	71%	86%
4	Studentscompleteness	53%	100%
5	Students incomplete	47%	0%
6	Classical completeness	53%	100%
7	Teacher Performance	59%	97%
8	Students Interest	81,81%	

5. DISCUSSION

Discussion of the results of this study is based on observations and continued with reflections of cycle I and cycle II. In the first cycle, based on observations of the teacher, it was found that the teacher's performance was quite good can be seen in the observation sheet performance of teachers in the first cycle, indicating the scores obtained at 23 or 58.97% of the maximum score of 39 being the second cycle shows that the performance has been good teacher can be seen in the teacher observation sheet cycle II, which shows the score obtained is 38 or 97.44% of the maximum score of 39, which shows that teacher performance has increased in cycle II compared to cycle I.

Observation of student activity, obtained from the sheet observation of the activities of students in the first cycle, which is 19 or 63.33% of the maximum score of 30. This shows that the student activity is still relatively low, fulfilling the expected criteria with a minimum percentage of between 60% -75%; while in the second cycle shows that student activity is high. It can be seen in the observation sheet of the activities of the second cycle students, which shows the score obtained is 28 or 93.33% of the maximum score of 30, which means it meets the expected criteria. This shows that student activity has increased in cycle II compared to cycle I.

The results of observations of the discussion of each group in working on the student worksheets have been said to be good. This is indicated by the average value in cycle I reaching 62%; and in the second cycle increased to 92%; This increase occurred because in the second cycle the level of activity and cooperation within the group was higher so that they were able to solve the given problem well.

Observations on the results of the evaluation in the first cycle showed that the ability of students to solve problems obtained an average score of 7.07, the highest score

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of 8.40 and the lowest score of 5.20. Students who finished learning were 19 students or 52.78% and those who did not complete were 17 students or 47.22%. This still does not meet the expected criteria, namely classical learning completeness must reach a percentage of 75%. The results of student evaluations in the second cycle showed the ability of students to solve problems obtained an average score of 8.62, the highest score of 9.20 and the lowest score of 7.60. There are 36 students who have finished learning or 100.00% and none of them have finished. This has met the expected criteria and student learning outcomes have increased in cycle II compared to cycle I.

The results of the student questionnaire responses showed that most students liked the DL, with a percentage of 81.81%, with the criteria of "*high*". Rusman (2011:219) conducted research on the DL whose results showed that cooperative interaction had various positive influences on children's development. Thus it can be said that DL can improve student learning achievement, so that this learning model can be a solution for teachers to improve student achievement.

6. CONCLUSIONS

After analyzing the data from the results of the action research and discussion, it was concluded that DL applied to VII grade students of SMP Negeri 1 Kedung Jepara in the Even Semester of the 2019/2020 Academic Year is as follows:

- a. There is an increase in students' English learning achievement, after following the DL, it is shown from the results of the evaluation in the second cycle is better (improved) and is in accordance with the indicators set, compared with the results of the evaluation in cycle I.
- b. There is an increase in student activity, in following the DL; this is indicated by the activity of students in cycle II better (increased) compared to student activities in cycle I.
- c. There is an increase in the performance of the teacher in implementing the DL. This is indicated by the performance of the teacher in cycle II better than in cycle I.
- d. Student responses to the implementation of the DL shows a very good response.

7. IMPLICATIONS

The results of this study are expected to be useful for teachers in gaining experience in conducting classroom action research to improve the quality of learning, adding alternative learning education that can improve students' ability to understand concepts and solve problems. As for students, this research is expected to foster students' ability to solve problems through disclosure related to learning material, increase student activity in learning, and foster a habit of working together and communicating with friends and groups.

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