

**INCREASING THE ACTIVITY AND OUTCOMES OF SCIENCE
LEARNING THROUGH THE IMPLEMENTATION OF THE
DISCOVERY LEARNING MODEL IN STUDENT X
AT SMK AL KHAIRIYAH CIOMAS**

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Abstract

This action research aims to increase student activity and learning outcomes through the application of discovery learning models in class X students at SMK Al Khairiyah Ciomas. The subjects of this research were 30 students in class X. What is used is classroom action research with the Kemmis and Mc model. Taggart. Each cycle is carried out with stages: planning, action implementation, observation and reflection. The results of the analysis of descriptive data show that in cycle I student learning outcomes have not yet reached the minimum completeness criteria (KKM) applied because they have only achieved an average score of 67.60 from a KKM score of 75, and an absorption capacity of 50% which means that 15 students have fulfilled the KKM and 15 students have not reached KKM. This is due to the activeness of students in learning 61.60 while the ability of teachers in learning has only reached 75%. From these results it is necessary to proceed to cycle II. And as for the results of the actions in cycle II that the average student learning outcomes were 76.20, which meant that they had reached the KKM and the absorption was 76.67%, which meant that 23 students had exceeded the KKM. While the ability of teachers by 85%. Because this research had reached KKM, this research was not continued in the next cycle. The results of the study concluded that the application of the discovery learning model can increase the activity and learning outcomes of science.

Keywords: *Activeness, Learning Outcomes, Discovery Learning*

1. INTRODUCTION

Education is very important in any case, because through education a person can achieve the desired goals and ideals. Indonesia is a developing country, in terms of education Indonesia still needs to make a lot of improvements so that the educational goals that have been designed can be carried out properly as expected.

Active according to the Big Indonesian Dictionary means trying to get an intelligence. Children have the urge to do something, have a will that arises from themselves. Learning cannot be forced by others nor can it be delegated to others. Learning is only possible when children actively experience it themselves. Good learning is that students learn through direct experience, so that students do not just observe directly but also live, are directly involved in actions and are responsible for the results. According to Sriyono (2008) activity can be divided into physical and spiritual activities, which include physical and spiritual activities including:

The activity of the senses, where students must be stimulated in order to use the senses as well as possible. Such as sight, smell, hearing, and others. Intellectual activity, children's minds must be activated to solve problems, weigh, formulate opinions, and

make decisions. Active memory, when teaching students must actively receive teaching materials, then at one time he can and is able to say it again. Emotional activity, in this case students should try to like and love their lesson.

Learning outcomes are the ultimate goal of carrying out learning activities in schools. Learning outcomes can be improved through conscious effort that is carried out systematically leading to positive changes which are then called the learning process. The learning outcomes obtained by students are certainly inseparable from several processes. One of the processes that students go through to get learning outcomes is by going through the learning process.

Learning is primarily a cognitive process that is not observable. It involves internal changes in an individual that are not visible to an outsider. These changes become apparent through observable changes in behavior. Learning can happen intentionally or accidentally and happens continuously, resulting in personal growth. Some individuals believe that learning is merely acquiring facts or knowledge. Those individuals may feel a sense of achievement when they can recall information from textbooks or lectures.

In English, the term discovery learning means discovery and learning means learning. So if interpreted discovery learning means learning discovery. The discovery learning learning model is a learning model developed by Bruner based on constructivism views (Hosnan et al., 2018). According to Bruner, learning by discovery is learning to discover, where a student is faced with a problem or situation that seems odd so students can find a solution (Markaban et al.2022). Amri (2021) "The learning model is as a design that describes the process of detailing and creating environmental situations that allow students to interact so that changes or developments occur in students."

Mulyasa (2016) explained that the discovery learning learning model is a learning model that emphasizes direct experience in the field, without having to rely on learning theories in the textbook guidelines. In other words, the learning process is more projected than the results to be achieved through the embodiment of learning. This action research aims to increase student activity and learning outcomes through the application of discovery learning models in class X students at SMK Al Khairiyah Ciomas.

2. RESEARCH METHODS

This research was conducted with the aim of knowing the increase in the activity and learning outcomes of class X students at SMK AL Khairiyah Ciomas in the science learning process using the Discovery Learning model. The class action research stage consists of planning, implementing, observing and reflecting on each action based on the initial reference.

This action research was carried out by following the model that had been developed by Hopkins namely. Preliminary Stage (Pre-Cycle), Cycle I, Cycle II. The types of data collection in this study were through observation, interviews, questionnaires, test questions, and documentation.

Data analysis, based on the model used, namely Classroom Action Research, the appropriate data analysis technique that can be applied is a qualitative descriptive analysis technique. Processing Quantitative Data on Student Learning Outcomes. Data on the results of learning activities on the material of the human respiratory system are analyzed

based on assessment standards. Syah (2013: 151) suggests that "The lowest score that states graduation/study success for a scale of 0-100 is 55 or 60. However, it is necessary to consider by school teachers the determination of a higher Passing Grade (eg 65 or 70)". For this reason, the researchers adjusted the Minimum Completeness Criteria (KKM) with the KKM from the school, namely 75. Calculating the percentage of students who achieved KKM compared to the percentage of previous KKM acquisitions. Evaluation and Reflection are carried out, which actions have been successful in accordance with the plan and which need to be improved as a reference for preparing an action plan in the next cycle, namely in cycle II.

3. RESULTS AND DISCUSSION

3.1. Research Results

In cycle I the researcher assessed student activity which included students in observing and researching a problem and its activity. Collaborators observe teachers in learning activities including student involvement in these learning activities. From this observation from cycle I, the teacher can direct students to understand the learning objectives quite well and has provided an outline of learning material that is appropriate to the abilities and skills of students. Students with teacher guidance carry out activities to find out, find, organize their findings and communicate correctly, besides that the teacher also provides opportunities for students to ask questions about material that is not clear. However, the implementation of activities is still hampered because students still lack the knowledge they have and master and lack of communication between them. This is evident from the results of the actions and observations of cycle I, as follows:

3.1.1. Learning Outcomes

Table 1. Learning Outcomes of Cycle I

No	Aspect Study	Pre Test	Post Test	Info
1	Average value	65,87	67,60	
2	The highest score	80	84	
3	Lowest Value	40	50	
4	Absorption	23,33	50,00	
5	Yield Increase			3,73

Learning outcomes data for Cycle I it can be seen that the average pre-test score was 65.87 with the highest score being 80 and the lowest being 40 while the absorption rate was 23.33% or 7 students who had reached the KKM. After achieving the action, the posttest activities achieved an average score of 67.60 with the highest score being 84 and

the lowest being 50 while the absorption capacity was 50.00% or 15 students who had reached the KKM. There is an increase in learning outcomes of 3.73.

The data can be seen in the following Figure:

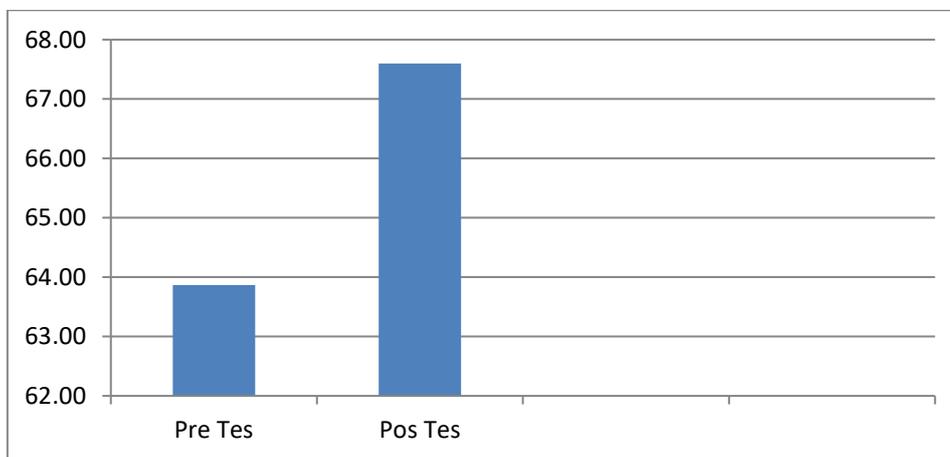


Figure 1. Learning Outcomes of Cycle I

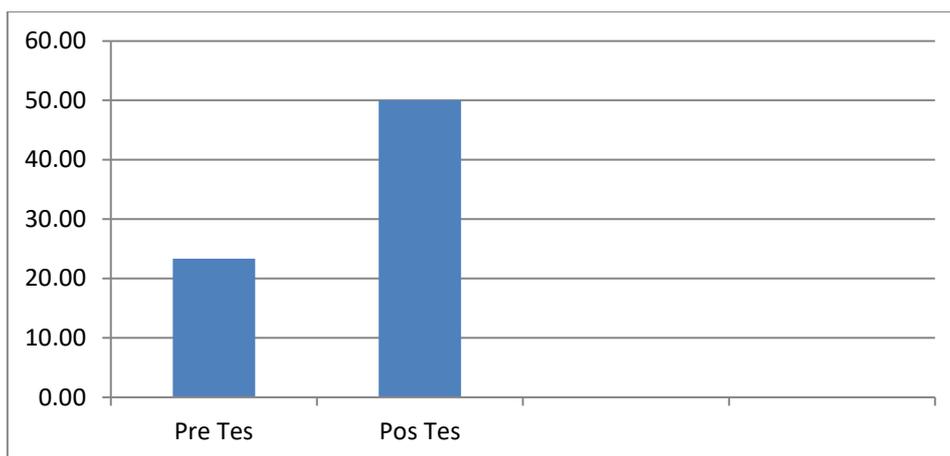


Figure 2. Absorption Data

3.1.2. Results of Student Activity

Table 2. Student Activity Results I

No	Aspect Study	Student Activity	Criteria
1	Average value	61,60	Moderate
2	The highest score	73,33	Good Student
3	Lowest Value	46,67	Moderate
4	Absorption	33,33	

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In the activity in cycle I, it can be seen that the average value reached 61.60, which means that it has just reached a moderate predicate, the highest scores are 73.33 and the lowest are 46.67 and the absorption power is 33.33% or 10 students who get a good predicate.

3.1.3. Teacher Activities

Table 3. Observation results of teacher activities

Cycle	value obtained	predicate
pre cycle/cycle	75,00 %	Good Student

In the table above it can be seen that the new teacher can carry out 75% or 15 learning activities out of 20 which should be carried out in full.

3.1.4. Cycle II

From this observation from cycle II, the teacher can direct students to understand the learning objectives quite well and has provided an outline of learning material that is appropriate to the abilities and skills of students. Students with teacher guidance carry out activities to find out, find, organize their findings and communicate correctly, besides that the teacher also provides opportunities for students to ask questions about material that is not clear. However, the implementation of activities is still hampered because students still lack the knowledge they have and master and lack of communication between them. This is evident from the results of the actions and observations of cycle II, as follows:

Table 4. Observation Results of Cycle II

No	Aspect Study	Pre Test	Post Test	Info
1	Average value	67,47	76,20	
2	The highest score	80	90	
3	Lowest Value	40	56	
4	Absorption	50,00%	76,67 %	
5	Yield Increase			8,73

From the data on Cycle II learning outcomes, it can be seen that the average pre-test score was 67.47 with the highest score being 80 and the lowest being 40, while the absorption rate was 50.00% or 15 students who had reached the KKM. After achieving the action, the post test activities achieved an average score of 76.20 with the highest score being 90 and the lowest being 56 while the absorption capacity was 76.67% or 23 students who had reached the KKM. There is an increase in learning outcomes of 8.73. The data can be seen in the following Figure:

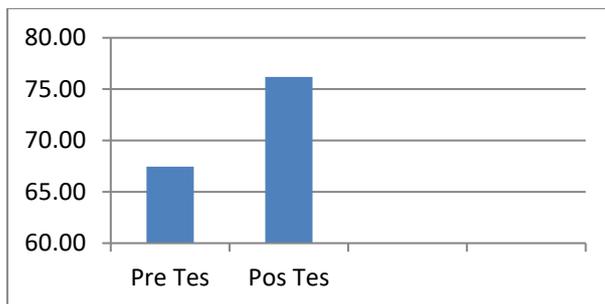


Figure 3. Comparison of Pre-Test and Post-Test Learning Outcomes in Cycle II

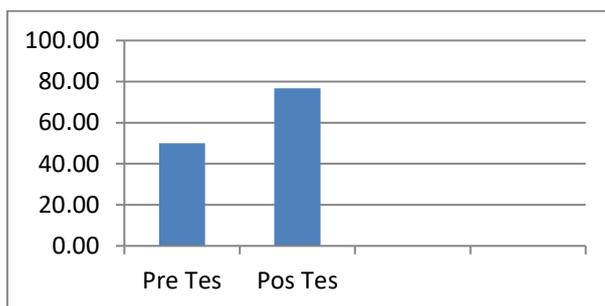


Figure 4. Absorption of Cycle II Learning Outcomes

3.1.5. Results of Cycle II Student Activity

Table 5. Results of Cycle II Student Activity

No	Aspect Study	Activity	Criteria
1	Average value	62,20	Good Student
2	The highest score	80,00	Good Student
3	Lowest Value	46,67	Not Good
4	Absorption	3,33	

From the data in the table above, it can be seen that the average value reached 62.20, which means that it has just achieved a good predicate, the highest score is 80.00 and the lowest is 46.67 and the absorption power is 66.67% or 20 students who get a good predicate.

3.1.6. Cycle II Teacher Activities

Table 6. Observation Results of Cycle II teacher activities

Cycle	Value Obtained	Predicated
Pre cycle /Cycle II	85,00 %	Good

In the table 6 it can be seen that the new teacher can carry out 85% or 17 of the 20 learning activities that should be carried out in full. From the learning outcomes data of Cycle I it can be seen that the average pre-test score was 63.87 with the highest score being 80 and the lowest being 40 with learning completeness or absorption of 23.33% or there were 7 students out of 30 who had reached KKM and 23 students KKM has not been achieved.

After the action was taken, the posttest activities achieved an average score of 67.60 with the highest score being 84 and the lowest being 50 while the absorption rate was 50.00% or 15 out of 30 students who had reached the KKM. So that there is an increase in learning outcomes of 3.73. These results indicate that in cycle II there was an increase in learning outcomes but many students had not exceeded the KKM, so researchers can provide a description as the chart below.

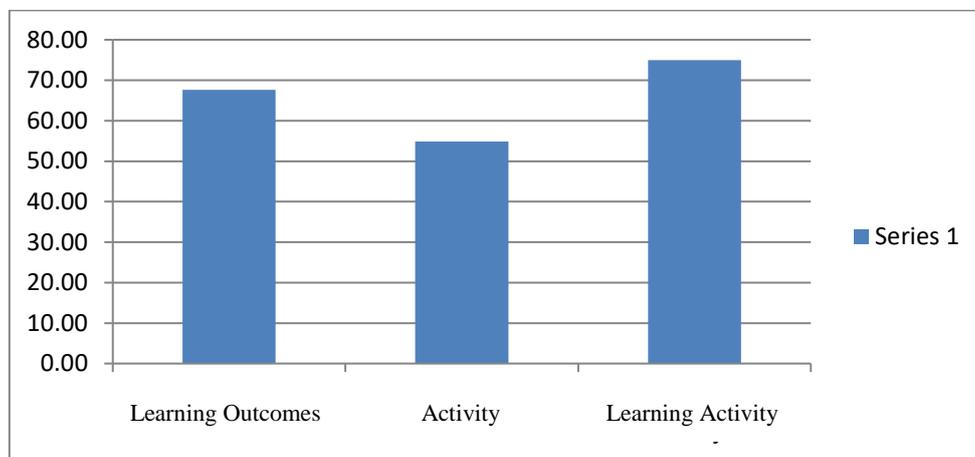


Figure 5. Results of Cycle I Actions

From the data on Cycle II learning out comes it can be seen that the average pre-test score was 67.47 with the highest score being 80 and the lowest being 40 while the absorption capacity was 50.00% or 15 students out of 30 students who had reached KKM while 15 others had not reached KKM. After achieving the action then on the posttest activities achieved an average score of 76, 20 with the highest score of 90 and the lowest 56 while absorption was 76.67% or 23 out of 30 students who had reached KKM and 7 had not reached KKM. There is an increase in learning outcomes of 8.73. The data can be seen in the following Figure:

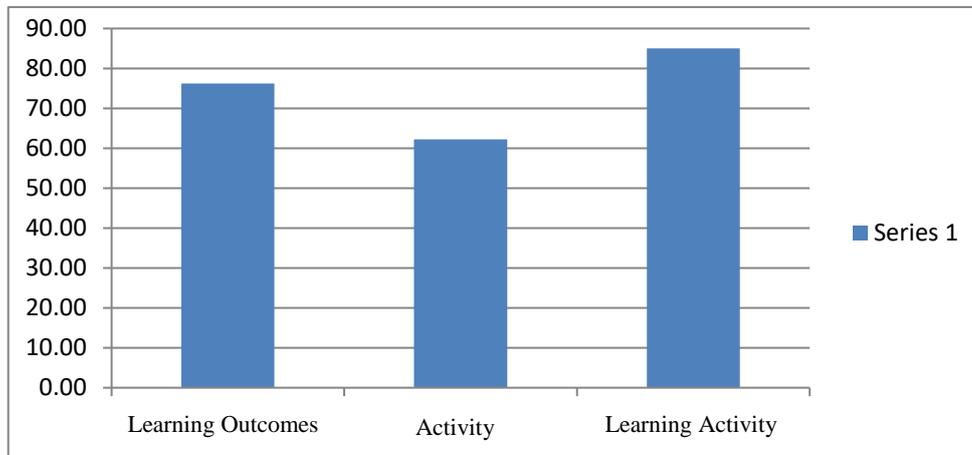


Figure 6. Results of Cycle II Actions

3.1.7. Student Learning Outcomes

Through the results of this study indicate that learning using the application of discovery learning in science subjects has a positive impact in improving student learning outcomes so that it can be used in learning.

Table 7. Results of Cycle I and Cycle II

Observed	Cycle I	Cycle II	Change	Change presentation	Increase	Criteria
learning outcomes	67.60	76.20	8.60	12,72 %	0.265	Low
Absorption	50.00	76.67		26.67%		

From the table above it can be concluded that learning outcomes in cycle I achieved an average value of 67.60 and in cycle II achieved an average value of 76.20 resulting in an increase of 8.60 or 12.72%. And absorption on cycle I reached 50.00% or there were 15 out of 30 students who had exceeded the KKM while in cycle II the absorption reached 76, 67% or 23 students out of 30 had exceeded the KKM. So that there is an increase in absorption capacity from 50.00% to 76.67% which means there is an increase of 26.67 points. Students' Activity Abilities in the Implementation of the Discovery Learning Model:

Table 8. Results of Student Activity Cycles I and II

Observed	Cycle I	Cycle II	Change	Change presentation
Activity student	61.56	73.78	12.22	19.86
Absorption	33.33	73.33	40.00	40.00

From the table above it can be concluded that the activeness of students in the first cycle achieved an average value of 61.56 and in the second cycle it achieved an average value of 73.56 resulting in an increase of 12.22 or 19.86%. And absorption in cycle I reached 33.33% while in cycle II absorption reached 73.33% or 22 students out of 30. So there was an increase in absorption from 33.33% to 73.33% which means there was an increase of 40. 00 points.

3.1.8. Teacher's Ability to Manage Learning

Based on the data analysis, the teacher's ability in the learning process can be obtained by applying the discovery learning model to improve learning outcomes and student activity in science subjects at SDN Sentul 1. In each cycle there is an increase. The results of these observations are as follows:

Table 9. Results of Teacher Activity Observer Cycles I and II

Cycle I	Cycle II	Criteria	Changed	Change presentation
75%	85%	Good	10%	7.50%

From the table above it can be concluded that the teacher's ability to learn in cycle I is 75%, meaning that learning activities can be carried out 15 out of 20 learning activities can already be implemented, while in learning in cycle II 85% or learning activities can be carried out 17 out of 20 learning activities can already be implemented implemented, so that with an increase in the ability of teachers in learning in each cycle has a positive impact on learning in each cycle.

The complete results of these actions can be seen in the following Figure:

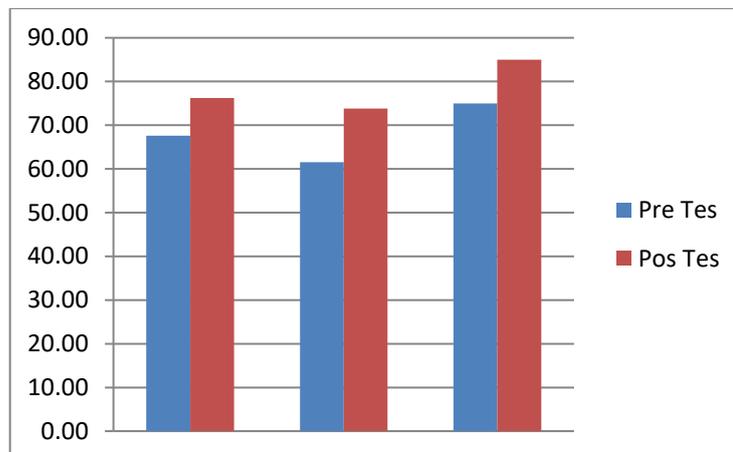


Figure 7. Post Test and Pre Test results

3.2. Discussion

1) Cycle I

Implementation of learning activities in the first cycle is said to be quite good, but there must be an evaluation to plan and carry out in the next cycle. In cycle I, the researcher found several things that were used as evaluation material, including:

- Teacher has not been able to distribute learning materials and time properly.
- Teachers have not maximally used the discovery learning model in learning.
- Teachers do not understand about the discovery learning model in learning according to theoretical studies.

2) Cycle II

The implementation of learning activities in cycle II is said to be better than cycle I, the things found in cycle II include:

- The teacher has been able to distribute learning materials and time well.
- Teachers have maximally used the discovery learning model in learning.
- The teacher already understands the discovery learning model in learning according to theoretical studies.

4. CONCLUSIONS

The results of the analysis in the first cycle of learning completeness classically have not reached the KKM. This is because the teacher has not maximized the application of the discovery learning learning model so that learning activities cannot be carried out optimally. As a follow-up to this reflection the teacher should maximize learning by applying discovery learning.

Likewise in cycle II there was an increase in student learning outcomes and student activity as evidenced by the increase in students who exceeded the KKM. The increase in this cycle is because after the teacher reduces the material and teaching materials and also gives more detailed explanations about the discovery learning model so that students understand more about the steps of learning with the application of discovery learning.

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