

Improving Student Learning Outcomes Using Inquiry Learning Models in Natural Science Subjects

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ABSTRACT

This research is motivated by the low student learning outcomes in natural science subjects (IPA) in the matter of changes in the form of objects. This is characterized by low learning outcomes with an average score of only 60 while the minimum completeness criterion (KKM) that has been set and must be achieved is 75. This study also aims (1) to find out the application of the inquiry learning model to subjects Science in class V MI Mamba'ul Ulum. (2) to find out the increase in student learning outcomes through the inquiry learning model in science subjects in class V MI Mamba'ul Ulum, with a total of 12 students. The research method used in this research is collaborative classroom action research (PTK), namely in the research process the researcher works with the subject teacher, consisting of two cycles. Data collection is done through tests, interviews, and observation. The results showed that by applying the inquiry learning model it was proven to be able to improve the learning outcomes of fifth grade students in the natural sciences subject matter of changes in the shape of objects. The student learning outcomes experienced an increase in the cycle as follows, in the pre-cycle the percentage of students' classical completeness was only 8.33%, which was included in the very less category, with an average value of 56.16. At the stage of cycle I, the percentage of classical completeness obtained, namely 75%, was included in the fairly good category with an average score of 88.91. and at the stage of cycle II the percentage of classical completeness obtained was 100% and was included in the very good category, with an average score of 95.33. Based on the results of the study it can be concluded that learning using the inquiry learning model can improve student learning outcomes.

Introduction

Educational activities have a lot of scope and are closely related to the development of young people, starting from physical and spiritual development, including physical development, thoughts, feelings, will, health, skills, social, conscience, and affection. Education is a cultured activity according to standards

accepted by society. The definition of education according to the national education system law No.20 of 2003 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, and skills that are treated by themselves and society. (Noor, 2018). Education is the process of changing the behavior of students so that they become adult human beings who are able to live independently as members of society in the natural environment where the individual is located. The process of changing behavior is carried out in the form of a teaching and learning process that creates learning experiences for individuals. Learning experience which is a conscious and planned effort carried out by families, communities, and governments through guidance, teaching, or training activities that take place at school and outside school (Astuti, 2022).

In the world of education since ancient times and in the future, science or natural science still plays a very important role in human life. This is because our lives are very dependent on nature, substances contained in nature, and all kinds of symptoms that occur in nature. Science is a family of sciences, has special characteristics, namely studying about factual natural phenomena, either in the form of reality or events related to the existence of cause and effect (Siregar, 2018). Science is a branch of knowledge that starts from natural phenomena, science is defined as a set of knowledge about natural objects and phenomena obtained from the results of scientists' thoughts and investigations carried out with experimental skills using the scientific method. This definition provides an understanding that science is a branch of knowledge that is built on observations and data classification, which is usually structured and verified in quantitative laws, which involve the application of mathematical reasoning and data analysis to natural phenomena (Sujana, 2014).

Learning outcomes themselves are one of the benchmarks that become a reference in improving the performance of an educator in the learning process. In fact, it is not a few that learning outcomes are used as a benchmark for the success of an educator even though the process or activities of students in the learning process cannot also be ignored in accordance with the characteristics of the curriculum that is currently being implemented (Kusaeri, 2014). Efforts that teachers can make to improve student learning outcomes are by using learning models. According to Udin quoted by Shilphy A. Octavia, a learning model is a conceptual framework that describes systematic procedures in organizing learning experiences to achieve specific learning objectives (Mirdad, 2020). The learning model serves as a guide for learning designers and teachers in planning and implementing learning activities. There are many learning models that teachers can use to support learning in the classroom, one of which is the *inquiry learning model* (Siahaan et al., 2021). The inquiry learning model facilitates learners to be interested in learning. This learning model encourages learners to make their own discoveries. In addition, this model has been proven to develop the potential of learners both physically and emotionally (Siahaan et al., 2021).

Research with the title “Application of the Inquiry Learning Model to the Activeness and Learning Outcomes of Mathematics in Class VII Students of Santo Aloysius Turi Junior High School 2016/2017” Wilda Malo (2017) explains that the results of her research show that learning by applying inquiry learning models can improve student activeness and learning outcomes. This is indicated by the average student activeness at the first meeting of 51% which is included in the medium category (Malo, 2019). Sedangkan pada pertemuan kedua, rata-rata keaktifan siswa sebesar 75% termasuk dalam kategori sedang. Rata-rata keaktifan siswa pertemuan pertama dan kedua di SMP Santo Aloysius Turi kelas VII C adalah 62,5%, termasuk dalam kategori sedang.

The research entitled “Application of Inquiry Learning Model Can Improve Mathematics Learning Outcomes of Students in Class XI IPA SMA Serirama YLPI Pekanbaru” Nurul Wulandari (2019) explains The results showed that learning by applying inquiry learning models can improve student learning outcomes. This is indicated by the application of the inquiry model in the mathematics subject matter of Rows and Rows in class XI can increase student learning activities. (Wulandari, 2019). This is in accordance with the observations of observers / researchers who have been carried out on students starting from cycle I to Cycle II and there has been an increase in each cycle, namely the average cycle I 61.74 increased in cycle II to 85.87.

Based on interviews conducted by researchers with science subject teachers at MI Mambaul Ulum Galang, information was obtained that students were less active in the learning process. The teacher only explains the material without using an interesting learning model so that students tend to get bored and not excited in these learning activities. This has an impact on the learning outcomes of students who are more than 50% below the minimum completeness criteria (KKM). Therefore, the author conducted this research with the hope of providing improvements in student learning outcomes by applying the inquiry learning model.

Method

The type of research used by researchers is classroom action research (PTK). The main purpose of PTK is to solve problems that occur in the classroom and seek scientific answers as to why this can be solved through the actions that will be taken (Ghony, 2008). In addition, PTK is also closely related to a person's desire to improve or improve learning practices in the classroom. This research should be conducted by teachers, because teachers are the ones who are directly dealing with the problems in their classrooms (Azizah, 2021). The PTK implementation procedure includes determining the focus of the problem, planning action, implementing actions followed by observation, interpretation, and analysis as well as follow-up plans. These activities are carried out to form a cycle. The main steps carried out in each cycle are action planning, action implementation, observation or data collection and reflection (FAUZIYAH, n.d.).

The subjects of this study included fifth grade students of MI Mamba'ul Ulum Galang, Turi District, Lamongan Regency, totaling 12 students consisting of 6 girls and 6 boys with different backgrounds and abilities. The data collection techniques used in the research are test, observation and interview techniques. The analysis is based on the results of data collection. The purpose of this data analysis is to solve research problems, show the relationship between phenomena contained in the study, provide answers to the hypotheses proposed in the study, and also for material to make conclusions and implications and suggestions that are useful for further research policies. To analyze classical student learning completeness and student activity using the formula $P = \frac{F}{N} \times 100$ with the information P = the value sought or expected, F = the number of scores from items or questions that are answered correctly and N the total number of students.

Results and Discussion

Based on the implementation of actions for 2 cycles carried out 4 times a meeting, the data obtained that student learning outcomes have increased. The increase in student learning outcomes is known by applying the inquiry learning model. The results of observations of the application of the inquiry learning model can be seen in the following table:

Table 1. Comparison of Student Observation Results Using Inquiry Learning Model Cycle 1, and Cycle II

Results of Student Observations in Applying the Inquiry Learning Model	
Cycle 1	Cycle II
75%	100%
Less Good	Very Good

Based on the table above, the percentage of student observation results using the inquiry learning model in cycle I was still 75% with a poor category, while in cycle II it reached 100% with a very good category. The results of student observations using the inquiry learning model increased from cycle I to cycle II by 25%. For the improvement of student learning outcomes in cycle I and cycle II can be seen in the following table.

Table 2. Data on the Improvement of Student Learning Outcomes Cycle I and Cycle II

Description	Value	
	Cycle 1	Cycle II
Total	1067	1144
Average	88,91	95,33
Highest Score	100	100
Completed KKM	9	12

Not Yet Completed KKM	3	-
Percentage	75%	100%

Based on the research that has been carried out, it is known that the learning outcomes of students in science learning through the application of the inquiry learning model have increased with the average score of students increasing from cycle I of 88.91 to 95.33 in cycle II. Based on this data, it is known that students who passed the KKM (minimum completeness criteria) in cycle I were 9 students out of the total number of students with a percentage of 75%. In cycle II there was an increase to 100% which consisted of 12 students who had passed the KKM. The achievement of classical learning outcomes in cycle II has reached the success indicator because students experience individual learning completeness ≥ 75 . The results of teacher activity observations using the inquiry learning model in cycle I and cycle II are presented in table 4 below.

Table 2. Comparison of Observation Results of teacher activities using inquiry learning models in cycle I and cycle II.

Teacher Activity Using the Inquiry Learning Model	
Cycle I	Cycle II
94,23%	98,21%

The results of observation of teacher activity in cycle I obtained a percentage of 94.23% in the very good category. Then further research was carried out in cycle II and obtained a percentage of 98.21% in the very good category. The use of inquiry learning models in learning science material on changes in the form of objects makes the learning process more interesting and fun. Students are more enthusiastic and excited in the learning process. This is because the inquiry learning model involves students playing an active role in discussing and presenting the results of discussions with friends about the material. This can be a reference that when using the appropriate learning model can make students enthusiastic in the learning process because when students are excited in the learning process it will affect the improvement of their learning outcomes.

The steps for applying the inquiry learning model in science subjects on the material of changes in the form of objects in class V are as follows: (1) Learners are divided into several groups randomly. (2) Learners with their groups observe some changes in the form of objects and objects that can change in the picture. (3) Learners and their groups discuss the results of the observations made. (4) Learners together with their groups write down the results of the discussion on the student worksheet. (5) Some groups present the results of the discussion and other groups respond. (6) The teacher provides additional explanation to perfect the learning material. (7) Learners read readings about changes in the form of objects. (8) Learners individually work on evaluation questions.

Conclusion

Based on the results of data analysis and observation from class action research (PTK) entitled "Improving Student Learning Outcomes Using the Inquiry Learning Model in Natural Science Subjects Grade V MI Mamba'ul Ulum Galang Academic Year 2022/2023" it can be concluded that: The problem that occurs in learning is the lack of focus of students on the material presented by the subject teacher so that it has an impact on the learning outcomes of students who tend to be low. Based on the existing problems, the researcher applies the inquiry learning model as an effort to improve the learning outcomes of students in science lessons on the material of changes in the form of objects with the following steps: 1. Learners are divided into several groups randomly. 2. Learners with their groups observe some changes in the form of objects and objects that can change in the picture. 3. Learners and their groups discuss the results of the observations made. 4. Learners together with their groups write down the results of the discussion on the student worksheet. 5. Some groups present the results of the discussion and other groups give responses. 6. The teacher provides additional explanations to refine the learning material. 7. Learners read readings about changes in the form of objects. 8. Learners individually work on evaluation questions.

The use of inquiry learning models can improve the learning outcomes of fifth grade students of MI Mamba'ul Ulum Galang. Students are very enthusiastic about the learning model that is carried out during the learning process. This is indicated by an increase that can be seen from the results of observations of student activity in cycle I with an average of 2.66 with a percentage of 58.33% increasing in cycle II with an average of 3.75 and a percentage of 88.54%. Likewise, the observation of educators in cycle I with a percentage of 94.23% and increased in cycle II, namely with a percentage of 98.21%. The use of inquiry learning models can improve the learning outcomes of science material on changes in the form of objects of grade V students of MI Mamba'ul Ulum Galang. This is indicated by an increase in the class average score at the time of pre-action 56.16 with a percentage of completeness of 8.33% increased to 88.91 with a percentage of completeness of 75% in cycle II then increased again in cycle II to 95.33 with a percentage of completeness of 100%. These results have shown that this class action research has achieved the completeness indicators that have been determined.

The suggestions that want to be conveyed to teachers in an effort to improve student learning outcomes are that they should be more active and creative in delivering learning materials every day so that students become more enthusiastic and interested in learning. Improving student learning outcomes by using inquiry learning models can be used as a consideration in further learning activities. For schools, it would be better if schools provide support for teaching staff to be more active in using creative learning models and according to learning needs. For future researchers, they can conduct similar research but can add better learning media to get better results as well.

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