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THE EFFECT OF THE 5E LEARNING CYCLE MODEL ON STUDENT LEARNING OUTCOMES IN ISLAMIC ELEMENTARY SCHOOL

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Abstract

This study aims to determine the effect of the 5E learning cycle model on student learning outcomes in grade IV, especially on the material life cycle of living things. The effect of this study is shown by the difference in the average student learning outcomes of the experimental class and the control class. This research is quantitative research, with a quasi-experimental design with a posttest-only control design. The population in this study were all fourth-grade students at MI Nurul Islam, a total of 109 children. The sampling technique in this study used the Simple Random Sampling technique. It is said to be simple (simple) because the collection of sample members is done randomly without regard to the strata in the population. The sample in this study was class IVA which consisted of 28 students as the experimental class, and class IVD which consisted of 27 students as the control class. In data collection techniques, researchers used documentation, observations, and tests. In this study, researchers obtained primary data by means of interviews, observations, and tests. Meanwhile, researchers obtained secondary data from several relevant journals, books, and previous research**.** The data analysis technique used is to test (independent t-test). Based on the results of the t-test (independent t-test), the results obtained were Sig. (2-tailed) has a value of 0.000 <0.05, which means that there is an influence between the two variables. And the correlation/relationship (R) value is 0.875. From this output, the coefficient of determination (R Square) is 76.6%. This shows that the Learning Cycle 5E learning model influences student learning outcomes by contributing 76.6%, and the rest is influenced by other variables.

Keywords Learning model, Learning outcomes, MI Nurul Islam, 5E Learning Cycle.

INTRODUCTION

Learning is basically a process of interaction and communication between teachers and students, where the teacher is a teacher and students as learners. Likewise, in science learning should be able to create learning that focuses on interactions between students and objects, and the teacher's role is only as a facilitator. Teachers need to create pleasant learning conditions and provide the tools students need to observe nature (Mustika, 2017).

The application of the 2013 curriculum at the elementary school level uses an integrative thematic, namely linking several subjects into a theme. A theme consists of three or four sub-themes, in that sub-theme consists of six lessons. Subjects such as Indonesian, Civics, Mathematics, Science, Social Studies, Physical Education, and SBdP are integrated into learning activities in one theme so that students do not realize they are studying a particular subject. Thus, they can fully understand a concept not only as knowledge but also can be applied through activities in learning. Of these various subjects, science is one of the subjects that often appears in learning activities because it is directly related to the student's environment (Goddess, 2018).

Science subjects in elementary schools are important subjects for developing scientific insights, skills, and attitudes from an early age. This is because science is one of the main subjects in the education curriculum in Indonesia (Wulandari, 2022). Natural Sciences (IPA) is a scientific group that has special characteristics, namely studying factual natural phenomena, both in the form of facts or events and causal relationships (Imran, 2020). Science through research that uses scientific procedures. In science education in elementary schools, students as a whole are not taught to do research, but through scientific procedures, students are taught in stages to be able to carry out their own research. Students are expected to be able to understand the knowledge that has been given by the teacher and apply it in everyday life (Andini, 2021).

Learning cycles is a learning cycle consisting of a series of stages of activities organized in such a way through the role of student activities so that learning objectives can be achieved effectively and efficiently because the learning cycle is a student-centered learning model so that they find their own knowledge (Adriyani & Purwanti, 2018). Several studies on the implementation of the Learning Cycle in science learning show that the use of the Learning Cycle shows success in improving the quality of student learning processes and outcomes. The Learning Cycle model used in this study is the Learning Cycle model with five stages (Yuliantii, 2015). This learning model was first introduced

by Robert Karplus in the Science Curriculum Improvement Study/SCIS. Initially, the learning cycle has three stages, namely exploration, concept introduction, and concept application. The three stages of the cycle are developed into five stages consisting of engagement, exploration, explanation, elaboration/extension, and evaluation, referred to as the 5E learning cycle (Rusydi & Kosim, 2018).

The engage stage aims to prepare students to be conditioned in taking the next phase by exploring their initial knowledge and ideas. In the explore stage, students are given the opportunity to work together in small groups to carry out activities such as practicum and literature review. Explain is the stage where the teacher encourages students to explain concepts in their own sentences. At the elaboration stage, students develop concepts and skills in new situations. The final stage is to evaluate the teacher to assess whether students have achieved the learning objectives (Latifa, 2017).

The learning process is very closely related to learning outcomes. Learning outcomes can indicate the level of success of the learning process. Knowing the learning outcomes of students also helps educators in designing learning model strategies used by educators that can influence students in receiving and mastering lessons. Choosing the right learning model can help students understand and master the material to be studied. The value of student learning outcomes can be used as a parameter to assess the success of the process of learning activities at school and can also be measured in carrying out the Teaching and Learning Process (Nur & Noviardila, 2021). The quality of education can increase if teachers can provide meaningful learning to students. In addition, if learning is carried out well and improves student learning outcomes, the quality of education will also increase (Nurbani, 2016).

Efforts to improve student learning outcomes are inseparable from the various factors that influence it. To improve student learning outcomes, teachers must be more creative and innovative in conducting classroom learning, one of which is by using the 5E (Learning Cycle) learning cycle model. The classroom atmosphere needs to be well planned so as to make students feel comfortable, enthusiastic, and active when starting learning, the learning process until the end of learning, which has an impact on increasing optimal learning outcomes. With the 5E Cycle model that is implemented properly, students can more easily understand the subject matter presented so that students can improve their learning outcomes. Therefore, seeing how important the 5E Cycle model is in learning, it is necessary to have an agreement between the researcher and the teacher to make

improvements using the 5E Cycle model. So the researcher is interested in conducting research on "The Influence of the 5E Learning Cycle Model on Learning Outcomes of MI Students on the Life Cycle of Living Things".

Based on the research that the researchers did while at MI Nurul Islam Ngaliyan Semarang, it is known that during the learning process, there were still many problems found. One of these problems was low learning outcomes. The low student learning outcomes are caused by several factors, including during observation, it is seen that the learning process has not used innovative learning models, and teachers are still using conventional learning models. The conventional learning model referred to here is a model that is often used by teachers in learning, namely, lectures varied with questions and answers. Less active students in the learning process, such as asking questions and expressing opinions, and the lack of students in expressing ideas, so they are not used to developing their thinking skills and, in the end, they only receive information. And there are also students who still have difficulty understanding the concept of learning both during the study and past lessons and if students are given the task of making conclusions about learning, on average, there are still many students who cannot make conclusions about the lessons being taught.

Based on these conditions, it is necessary to have an innovative learning model that can be a solution to the problem of low science learning outcomes and can optimize the science learning process in elementary schools, especially the life cycle material of living things delivered by the teacher and is able to involve students to play an active role in the learning process so that learning in class feels fun and not boring for students, by using appropriate and effective learning models to solve these problems. One indicator to see the level of success in developing students' abilities in the science field is the student's science learning outcomes. The results of this science study will later show the student's level of mastery of science because of the importance of IPA (Juniati & Widiana, 2017).

Therefore, researchers used the 5E Learning Cycle model to improve student learning outcomes in science lesson concepts. Alternatives that can be used to solve these problems include using learning models that involve students directly and are actively involved in building their own knowledge. One learning model that is considered appropriate is the 5E Learning Cycle model. The use of the 5E learning cycle learning model can influence the mastery of the science content concept because it can make learning easier to understand. Learning activities are carried out in a coherent

manner based on the stages of the 5E learning cycle learning model, which makes learning activities presented in a systematic manner(Wati, 2021). The Learning Cycle 5E learning model has phases that can be oriented to the 2013 Curriculum so that it can train students' science process skills (Astriani, 2016).

In the research put forward by(Andini, 2021)that the Learning Cycle 5E learning model based on Scientific Literacy is proven to be able to improve the ability to ask questions in science learning activities for class VIII students of SMPN 1 Jetis.This was obtained through the value of the ability to ask questions in the experimental class given the Science Literacy-based 5E Learning Cycle learning model, which was higher than the average score in the control class. In addition, based on the results of hypothesis testing with the t-test, it produces a sig of 0.000, which means it is smaller than 0.05 so that there is an influence of the Science Literacy-based 5E Learning Cycle model to improve the ability to ask questions of students in the experimental class. The difference between this research and research conducted by researchers lies in the use of scientific literacy and the dependent variable, namely increasing the ability to ask questions.

In the research put forward by (Basic & Ganesha, 2019), the results compared were: 1) the disciplined attitude of students who followed the local wisdom-based learning cycle (5E) model with students who took conventional learning, 2) the science learning outcomes of students who followed the local wisdom-based learning cycle (5E) model with students who following conventional learning, and 3) disciplined learning attitudes and science learning outcomes of students who follow the learning cycle (5E) model based on local wisdom with students who simultaneously take conventional learning. Based on the research that has been done, descriptively disciplined learning attitudes and science learning outcomes of fourth-grade students following the learning cycle model (5E) have an average score of learning discipline attitudes and learning outcomes higher than the average score of disciplined learning attitudes and science learning outcomes of students participating in conventional learning. The difference between the research above and the research conducted by researchers lies in the use of local wisdom-based research, and there are two dependent variables, namely the attitude of learning discipline and learning outcomes.

Research put forward by (Hadi & Putriani, 2021) with the result that the learning cycle learning model on the concept of classification of living things using the Randomized Pretest-Posttest control group design research design has a significant effect on biology learning outcomes

can be shown from the pretest average value in learning cycle learning is 45.31 and after learning in the learning cycle learning model the mean value of the post-test became 71.25 in the experimental class this was reinforced by the results of hypothesis testing with the t-test. Post-test t-test results at level = 0.05 obtained t-count with table 2.00. this shows that there is an influence of the learning cycle learning model on biology learning outcomes in the concept of classification of living things. The difference between the research conducted above and the research carried out by the current researcher lies in the research design used. The current research is carried out using a research design *post-test only control design*.

In the research put forward by (Latifa, 2017), the result was that if viewed based on the N-gain formula, the average value of the critical thinking skills of the experimental class after being given treatment experienced a significant increase with a value of 0.46 in the moderate category. Unlike the case with the control class, which experienced an increase with an N-gain value of 0.15 in the low category. The difference in the final test results is based on the average scores of the two classes, and this hypothesis test shows that the application of the 5E Learning Cycle model has an effect on critical thinking skills. This is because this model can involve students optimally in the learning process so that they are active in gaining knowledge through a series of activities that train them to discover their own knowledge. This activity led to increased critical thinking skills. The difference between the research above and the research conducted by researchers lies in the dependent variable, where the research above focuses on critical thinking skills. And another difference lies in the level of education, namely the research above was carried out for the MAN level.

In the research put forward (Mustafa, 2019) with the result that the results of the summary data analysis of the ANOVA test showed that the significance level in the corrected model was 0.001. Because the significance value is far below 0.05, H0 is rejected. So that at the 95% confidence level, it can be concluded that simultaneously the 5E learning cycle model influences critical thinking skills and student learning outcomes. The difference between the research above and the research conducted by current researchers lies in the independent variables. The research above focuses on critical thinking and learning outcomes, while the current research only focuses on learning outcomes.

The novelty of this research from previous research lies in the subjects that researchers use, namely Natural Sciences, which basically learning Sciences should use practicum, while researchers use the learning cycle model, where this learning cycle is more centered on students finding out their own knowledge. This study aims to determine the effect of the learning cycle model on student learning outcomes in Madrasah Ibtidaiyah.

METHOD

The approach used in this study is a quantitative approach with a true experimental design. The quantitative approach is a research approach used to test objective theory by examining the relationship between variables. Variables in the study were measured using research instruments. The data obtained is then processed using statistical tests (Cahyani, 2021). At the same time, the type of research is true experimental design, which is a research design that uses two sample groups, namely the experimental class and the control class.

In this study, the authors used a research design that used a post-test-only control design (Sugiyono, 2017). In this design, there are two groups taken as samples. Class IVA is the group that uses the 5E learning cycle learning model (experimental class), and class IVD uses the conventional learning model (control class).

This research was conducted at MI Nurul Islam Ngaliyan Semarang with a research population of all class IV MI Nurul Islam for the 2022/2023 academic year, totaling 109 students. The sampling technique in this study used the Simple Random Sampling technique. It is said to be simple (simple) because the collection of sample members is done randomly without regard to the strata in the population(Sugiyono, 2017). The samples in this study were class IV A, totaling 28, and IV D, totaling 27 students, where class IV A was the experimental class and class IV D was the control class. The post-test-only control design pattern in this study is as follows:

Table 1. Design Pattern posttest only control

R1	X	O1
R2	Y	O2

Information:

R1: Experimental group

R2: Control group

X: Treatment (treatment) for the experimental group using the 5E learning cycle method

Y: Treatment (treatment) for the control group using conventional methods

O1: Experimental class measurement results

O2: Results of measurement of the control class

In the post-test-only control design, class homogeneity calculations are obtained based on odd semester UAS scores for the 2022/2023 academic year. The group that was used as the experimental group received treatment or treatment using the 5E Learning Cycle method, and the control group / which did not receive treatment using conventional methods. Then the two classes were given a post-test to test the effect.

The instrument used to collect data on student learning outcomes in science learning in this study used multiple choice test questions with material on the life cycle of living things to determine learning outcomes in science learning. The instrument for this test of learning outcomes was carried out by samples in the experimental class and control class after learning activities with a predetermined learning model.

The data collection process begins with determining the sample class, namely the experimental class and the control class. Where the experimental class received treatment using the 5E Learning Cycle model, while the control class used the Conventional model. At the end of the meeting, the experimental class and the control class were given the same test questions to measure student learning outcomes. The test instrument questions distributed to students are questions that have previously gone through a preliminary test, namely the validity test and reliability test. The data obtained were then analyzed using a statistical test using the t-test (Independent t-test). Before testing the hypothesis, a prerequisite test was first carried out, consisting of a normality test and a homogeneity test.

The data sources contained in the study were divided into two, namely primary data sources and secondary data sources. Primary data sources are data sources obtained directly (from first-hand). In this study, researchers obtained primary data by means of tests and documentation. At the same time, secondary data sources are data sources obtained from existing sources. Researchers obtained secondary data from several relevant journals, books, and previous research.

In this study, the researcher intends to prove the hypothesis that Ha, namely the 5E learning cycle model, has an effect on student learning outcomes on the life cycle of living things for class IV

at MI Nurul Islam Ngaliyan in the 2022/2023 academic year. Whereas H0, namely the 5E learning cycle model, has no effect on student learning outcomes on the life cycle of living things for class IV at MI Nurul Islam Ngaliyan in the 2022/2023 academic year.

FINDINGS AND DISCUSSION

Findings

Based on the results of research conducted in class IV MI Nurul Islam Ngaliyan Semarang in the even semester of the 2022/2023 academic year, data on learning outcomes were obtained from the experimental class and the control class. The data that has been obtained is then analyzed using statistical tests with the help of the SPSS application.

Prior to conducting research for data collection, validity, and reliability tests were first carried out on the instrument learning outcomes test questions. The learning outcomes test questions were tested in class V to find out the validity and reliability of these questions, which totaled 30 questions to be worked on by students. After testing, it turned out that only 20 out of 30 questions were declared valid. The following are the results of the instrument validity test of the learning outcomes test questions with the help of the SPSS application:

Table 2. Validity Test Results

soal	rhitung	rtabel
1	0,52	0,388
2	0,65	0,388
3	0,49	0,388
4	1,41	0,388
5	0,67	0,388
6	0,93	0,388
7	1,26	0,388
8	1,20	0,388
9	0,74	0,388
10	0,44	0,388
11	1,10	0,388
12	1,05	0,388
13	1,03	0,388
14	1,00	0,388
15	0,84	0,388
16	0,52	0,388
17	0,95	0,388
18	0,44	0,388
19	1,62	0,388
20	0,77	0,388

Based on Table 2, it can be seen that the r-count value of the 20 items is greater than the r-table, which is 0.388, so it can be declared valid. After the questions are declared valid, a reliability test is performed using Cronbach's Alpha criteria with the help of the SPSS application. The reliability test was carried out to see whether the question instrument could be trusted so that it could be used to measure objects several times by producing the same value. Data analysis stated that if the value of Cronbach's Alpha > 0.060, then the instrument can be declared reliable. After the reliability test was carried out using SPSS assistance, the following results were obtained.

Table 3. Reliability Test Results

Cronbach's Alpha	N of items
24,317	20

Based on the results of the reliability test in Table 3, it can be seen that Cronbach's Alpha value is 24.317, which means it is greater than (>) 0.060, so the item instrument can be declared reliable. After the two preliminary tests above are fulfilled, then the initial prerequisite test can be carried out to find out the state of the sample class before being given treatment. In this early stage, testing is in the form of normality tests and homogeneity tests. The normality test in this study was carried out in classes IV A and IV D. In this initial normality test, and the researcher used the odd semester PAS scores. After the normality test was carried out using SPSS assistance, the following results were obtained:

Table 4. Preliminary Data Normality Test Results

Tests of Normality

		Kolmogorov-Smirnova			Shapiro-Wilk		
	Class	Statistics	Df	Sig.	Statistics	Df	Sig.
PAS results	PAS_IVA	.131	28	.200*	.952	28	.226
	PAS_IVD	.161	27	.070	.911	27	024

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the PAS results of the initial data normality test, the results obtained were that in class IV A the data were normally distributed because the Sig. PAS IV A 0.200 > 0.05, in class IV D the data is normally distributed because of the value of Sig. PAS IV D 0.070 > 0.05. After the normality test was carried out, the homogeneity test was carried out at the initial stage. Following are the

results of the initial homogeneity test using SPSS:

Table 5. Preliminary Data Homogeneity Test Results

Test of Homogeneity of Variances					
		Levane Statistics	**df1**	**df2**	**Sig.**
PAS results	Based on Means	1,062	1	53	.307
	Based on Median	.893	1	53	.349
	Based on the Median and with adjusted df	.893	1	51,164	.349
	Based on trimmed mean	.938	1	53	.337

Based on the results of the homogeneity test using the SPSS software, it can be concluded that classes A and D have a homogeneous distribution because the significant value is 0.307 > 0.05. So, it can be concluded that classes IV A and IV are feasible to be used as sample classes where class IV A is the experimental class totaling 28 students, and class IV D is the control class totaling 27 students.

After the initial test was carried out, the researcher then carried out the research in the experimental class using the 5E learning cycle model and in the control class using the conventional model. In this study, researchers used a post-test-only research design to determine student learning outcomes. After the research was carried out, the researcher calculated the post-test results for each class with normality and homogeneity tests. Following are the results of the normality test using SPSS:

Table 6. Post-test Normality Test Results

Tests of Normality							
		Kolmogorov-Smirnova			Shapiro-Wilk		
	Class	Statistics	Df	Sig.	Statistics	Df	Sig.
Result_Posttest	1	.146	28	.131	.942	28	.123
	2	.162	27	.066	.930	27	.070
a. Lilliefors Significance Correction							

Based on the results of the normality test in Table 6, it can be seen that the sig. in the experimental class of 0.131, and the sig. in the control class of 0.066. The two sig values. These are both greater than (>) 0.05, so it can be stated that the data on learning achievement test scores in the experimental class and in the control class are normally distributed. After carrying out the normality test, the next test is carried out, namely the homogeneity test. The homogeneity test in

this study uses Levene Statistics with the help of the SPSS application. Following are the results of the homogeneity test using SPSS:

Table 6. Posttest Homogeneity Test Results

Test of Homogeneity of Variances					
		Levane Statistics	**df1**	**df2**	**Sig.**
Post-test Study Results	Based on Means	4,169	1	51	046
	Based on Median	2,931	1	51	093
	Based on the Median and with adjusted df	2,931	1	47,469	093
	Based on trimmed mean	4,170	1	51	046

Based on the results of the homogeneity test in Table 6, it can be seen that the sig. of 0.046 where 0.046 <0.05, so it can be concluded that the data is not homogeneous.

The hypothesis put forward in this study is that Ha exists the effect of the 5E learning cycle on student learning outcomes on the life cycle material of fourth-grade living creatures at MI Nurul Islam Ngaliyan in the academic year 2022/2023. And H0, there is no effect of the 5E learning cycle on student learning outcomes on the life cycle of living things for class IV at MI Nurul Islam Ngaliyan in the 2022/2023 academic year. After the two prerequisite tests are met, the test can be continued at the hypothesis testing stage. Test the hypothesis in this study using the Independent Sample T-Test with the help of the SPSS application. The following are the results of the Independent Sample T-Test calculations that have been carried out using SPSS.

Table 7. Independent Sample T-Test Results

Independent Samples Test										
		Levine's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	Q	Df	Sig. (2-tailed)	Mean Differences	std. Error Difference	Lower	Upper
Result_ Posttest	Equal variances assumed	5,437	024	2,794	53	007	8,426	3.016	2,377	14,475
	Equal variances not assumed			2,779	48,046	008	8,426	3,032	2,330	14,522

Based on Table 7, it can be seen that the value of Sig. (2-tailed) of 0.007 <0.05 so that H0 is rejected and Ha is accepted. So it can be concluded that there is a difference between the results of the post-test in the experimental class and the control class, so it can also be concluded that there is an effect of using the 5E Learning Cycle method on the learning outcomes of class IV students at MI Nurul Islam.

After calculating the Independent Sample T-Test, a regression calculation is carried out to find out how much influence the use of the 5E Learning Cycle model has on the learning outcomes of class IV MI Nurul Islam students. The following table shows the results of calculating the effect of using the 5E Learning Cycle model on student learning outcomes using regression.

Table 8. Regression Test Results

Summary models				
Model	R	R Square	Adjusted R Square	std. The error of the Estimate
1	.875a	.766	.756	6,277
a. Predictors: (Constant), Posttest_IVA				

Anova

Model		Sum of Squares	Df	MeanSquare	F	Sig.
1	Regression	3216878	1	3216878	81,649	.000b
	residual	984,974	25	39,399		
	Total	4201852	26			

a. Dependent Variable: Posttest_IVD

b. Predictors: (Constant), Posttest_IVA

Based on the results of the influence test of two variables using regression, the results obtained were Sig. (2-tailed) has a value of 0.000 <0.05, which means that there is an effect of using the 5E Learning Cycle model on student learning outcomes. And the correlation/relationship (R) value is 0.875. From the output, the coefficient of determination (R Square) is 0.766, which implies that the effect of using the 5E Learning Cycle model on student learning outcomes is 76.6%.

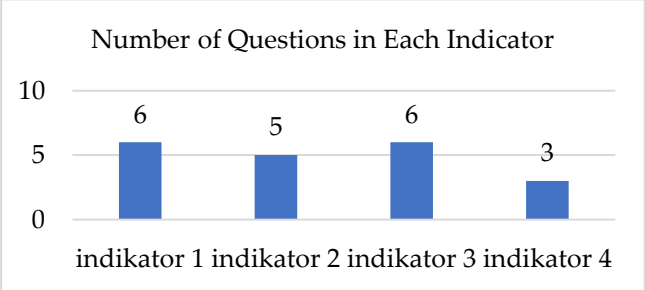
Discussion

The Learning Cycle model is a learning model that is based on a constructivist view which is, of course, student-centered. The Learning Cycle is a series of activity stages organized in such a way that students can master the competencies that must be achieved in learning by playing an active role. Several studies on the implementation of the Learning Cycle in science learning show that the use of the Learning Cycle shows success in improving the quality of student learning processes and outcomes. The model used in this study is the Learning Cycle model with five stages. The stages in the 5E Learning Cycle are: engage, explore, explain, extend, and evaluate.

In this study, researchers used multiple choice test questions to test student learning outcomes, which consisted of 30 questions. The 30 questions consist of 4 indicators that must be met, while the indicators that the researcher uses are: 1) Students are able to state or re-explain the meaning of metamorphosis, 2) Students are able to classify a statement about the material life cycle of living things, 3) Students are able to find a correct pattern of the process of the occurrence of the life cycle of living things, 4) Students are able to interpret or interpret an image form that exists in the material of the life cycle of living things. Before the questions were used for the experimental class and control class, the questions were tested first in class V to find out the feasibility of the questions and to find out how many questions were valid and reliable. In calculating the validity and reliability of this researcher uses the help of the SPSS application. After doing the calculations,

it turned out that of the 30 questions tested, only 20 questions were valid. Where the 20 questions already include four indicators that must be met. The following is a diagram of the results of the indicators of the learning outcomes test.

Figure 1. Number of Questions in Each Indicator



After the preliminary test is fulfilled, then the initial prerequisite test is carried out in the form of normality and homogeneity tests to determine the state of the sample class before being given treatment. In this initial stage, testing in the form of a normality test and homogeneity test with the help of the SPSS application. The normality test in this study was carried out in classes IV A and IV D. In this initial normality test, and the researcher used the odd semester PAS scores. After the calculation of normality, the results are obtained in class IV A. The data is normally distributed because Sig value. PAS IV A 0.200 > 0.05, in class IV D the data is normally distributed because of the value of Sig. PAS IV D 0.070 > 0.05. Meanwhile, in the homogeneity calculation, the result is 0.307 > 0.05. It can be concluded that class A and D are homogeneously distributed. So it can be concluded that classes IV A and IV D are feasible to be used as sample classes. Where class IV A was the experimental class totaling 28 students, and Class IV D was the control class totaling 27 students. After testing the initial stages, the researchers immediately carried out research in the experimental class and control class to test the learning outcomes of the two classes.

Based on the learning process that has taken place at MI Nurul Islam Ngaliyan, with a sample of class IV A as the experimental class and class IV D as the control class. Learning activities in the experimental class using the 5E Learning Cycle model students are very interested in the activities carried out with this learning model. From the results of ongoing learning activities, students also play an active role, students feel happy learning science, and students feel bored when learning is reduced. Using this model, it shows a good response from students. It can be concluded that this learning model can increase students' enthusiasm for learning, help students become active, and

help them practice doing a collection of science questions and easily remember material about the life cycle of living things.

Figure 2. Explore Stage

In line with the opinion expressed by (Aditya, 2019) that applying the learning cycle (5E) learning model can make students more active in the learning process, and its application is also effective. Based on the research that has been done, the learning cycle model (5E) in the learning process has a significant effect on student learning outcomes. (Andini, 2021), in his research, he also said the Learning Cycle learning model "5E" is student-centered, so it is based on constructivism thinking from Piaget. The Learning Cycle can also be described as a series of activity steps (phases) that are taught properly and correctly in accordance with the proper learning model so that students can understand the materials and competencies that must be achieved in education through an active role path. In addition, research conducted by (Hadi & Putriani, 2021) stated that this learning cycle model really helps students in learning actively and productively to achieve optimal learning goals. An emphasis on active student learning needs to be developed. The creativity and activeness of students will help them to stand alone in the cognitive life of students.

You can see the difference between the implementation of learning in the experimental class and the control class, and it can be seen from the students' abilities in learning outcomes. The experimental class that used the 5E Learning Cycle model was more active because the initial activity was carried out by giving apperception. Researchers provide good motivation so that students are seen to be active, dare to come to the front of the class and have opinions. At the exploration stage, the researcher has provided an explanation of the LKS work steps so that students begin to understand and are able to fill in the LKS. During the evaluation stage, it was seen that students were still hesitant in expressing their lack of understanding, but this could be overcome by asking several students to repeat a brief explanation of the topics they had learned. Whereas the control class still uses conventional models that still look lacking. In the early stages, the researchers both

gave apperceptions, but during the main activities, the researchers saw that the students did not seem enthusiastic because the students were still shy and lacked the courage to argue about the material they did not understand. So that when working on LKS, they do not master the questions that must be done. Even at the final stage, they also seemed less confident when concluding learning due to the lack of motivation given. So that when working on LKS, they do not master the questions that must be done. Even at the final stage, they also seemed less confident when concluding learning due to the lack of motivation given. So that when working on LKS, they do not master the questions that must be done. Even at the final stage, they also seemed less confident when concluding learning due to the lack of motivation given.

From the research that has been done, it can be seen that the 5E Learning Cycle model in elementary schools is very influential in improving student learning outcomes. It can be seen from the posttest average score of the experimental class that it was 77.5, while the posttest average value of the control class was 69.07. This is reinforced by the results of testing the hypothesis with the t-tesPosttestest t-test results get resulting. (2-tailed) 0.007 <0.05, which means that there are differences in post-test results between the experimental class and the control class. This shows that there is an influence of the 5E learning cycle learning model on science learning outcomes in the material life cycle of living things. In the test results of the influence of two variables using regression, the results obtained are Sig. (2-tailed) has a value of 0.000 <0.05, which means that there is an effect of using the 5E Learning Cycle model on student learning outcomes. And the correlation/relationship (R) value is 0.875. From the output, the coefficient of determination (R Square) is 0.766, which implies that the effect of using the 5E Learning Cycle model on student learning outcomes is 76.6%.

CONCLUSION

Based on the results and discussion described above, it can be concluded that the 5E Learning Cycle model is one of the learning model solutions that can improve the learning outcomes of class IV MI Nurul Islam Ngaliyan students. Because applying the learning cycle (5E) learning model can make students more active in the learning process and its application is already running effectively, this will also indirectly make the class atmosphere more interesting, far from being bored during learning.

After carrying out the post-test in the experimental class and control class, the post-test average value calculation for the experimental class using the 5E learning cycle model obtained a result of 77.5, while the post-test average value for the control class using the conventional model obtained a result of 69.07. This is reinforced by the results of testing the hypothesis with the t-test. Posttest t-test results get resultsSig. (2-tailed) 0.007 <0.05, which means that there are differences in post-test results between the experimental class and the control class. Then also obtained the results of the influence test of two variables using regression with the result that is Sig. (2-tailed) has a value of 0.000 <0.05, which means that there is an effect of using the 5E Learning Cycle model on student learning outcomes. And the correlation/relationship (R) value is 0.875. From the output, the coefficient of determination (R Square) is 0.766, which implies that the effect of using the 5E Learning Cycle model on student learning outcomes is 76.6%.

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