Application Of Inquiry Learning Model Based On Flash Video To Improve Critical Thinking Skills And Sciences Learning Outcomes In Class VI SD GMIM 364 Ratatotok

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Application Of Inquiry Learning Model Based On Flash Video To Improve Critical Thinking Skills And Sciences Learning Outcomes In Class VI SD GMIM 364 Ratatotok

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Abstract

Inquiry learning is formed on the basis of discovery, for that students must use their ability to explore and use other abilities. Thus, inquiry-based learning is learning that uses a scientific approach that emphasizes the activities of students to investigate, seek, and find answers to existing problems with confidence. The subjects of this study were 20 grade 6 students of SD GMIM 364 Ratatotok in the 2020/2021 school year. The 20 students consisted of 11 female students and 9 male students. While the object of this research is the application of the Flash Video-Based Inquiry Learning Model to Improve Critical Thinking Skills and Science Learning Outcomes. Based on the research design, this study used a class action research design or classroom action research. The results showed an increase in students' critical thinking skills, as well as improving their learning outcomes. Where, before there was a decrease in the value of C from cycle I to cycle II, then there was an increase in the values of B and A from Cycle I to Cycle II in flash video-assisted learning on the special characteristics of plants and animals, which were declared successful in improving critical thinking skills of 6th grade elementary school students. GMIM 364 Ratatotok. Critical thinking skills and student learning outcomes increase. This proves that the actions taken by applying inquiry-based science learning assisted by flash video media on the material on the special characteristics of plants and animals are successful.

Keywords: Inquiry learning, flash video, critical thinking skills

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Introduction

James Conat stated that science is a series of concepts and conceptual schemes that are related to each other, and which grow as a result of experimentation and observation, and are useful for further observation and experimentation [(1,2)].

Curriculum changes often have an impact on the world of education itself. Curriculum changes make teachers and students have to be able to adapt in accepting and implementing the new curriculum. One of them is at the school where the researcher teaches, namely SD GMIM 364

Ratatotok. . This school is one of the schools that implements the 2013 Curriculum in grades 1, 2, 4, and 5 for one semester. This has an impact on the quality of knowledge of students who are currently studying in grade 6 due to differences in learning priorities and learning methods applied by teachers to the curriculum which have an impact on the learning process.

One of the subjects that was affected by the impact was science subjects. In the 2020/2021 school year, researchers encountered several obstacles during the science learning process on the material on the special characteristics of animals and plants. One of the problems is the learning process which takes longer so that it does not match the time stated in the Lesson Plan (RPP), as a result, learning other materials must be withdrawn. The material on the special characteristics of plants and animals is quite extensive and students must memorize the special characteristics of living things so that their learning outcomes increase. The learning process does not involve students so that students tend to be passive during the learning process.

Learning is still teacher-centered. Students only listen and record what is explained by the teacher. When asked a question, students can give an answer but cannot explain the reasons or opinions regarding the answer. When asked to give opinions or ask questions, students are also passive. This shows that students' critical thinking skills are low. Learning outcomes are also low, it takes 3 remedial times to finally learn at least 75% of students reach the KKM (Minimum Completeness Criteria). Based on the results of interviews with previous teachers and students, the researchers found that teachers gave more questions at the stage of memory and understanding. This is also an introspection for researchers, because in the previous year researchers also did the same thing in learning with broad material, due to pursuing material so that it was finished quickly.

The reality that occurs in the classroom shows that learning is still not ideal. Because ideally science learning should involve a lot of students so that students are successful in learning. Rusmono (2012) argues that there are still many teachers at various levels of primary and secondary education (general and vocational) in managing learning activities in their classrooms with one-way learning between teachers and students, so that the interaction between students and teachers as well as students and students students do not take place effectively and efficiently in achieving the learning objectives set [3,4].

Departing from the teaching experience in the previous year, the researchers decided to implement inquiry-based science learning with the aid of flash videos in the 2020/2021 school year. This is an effort to improve critical thinking skills and student learning outcomes. Because the inquiry method has advantages that can make students active in processing information, concepts received by students will be stronger because they are the result of their own search, cognitive skills are more developed, concepts or knowledge will be remembered longer, and students will learn more. learning resources [5,6].

Inquiry learning is formed on the basis of discovery, for that students must use their ability to explore and use other abilities [4]. Thus, inquiry-based learning is learning that uses a scientific approach that emphasizes the activities of students to investigate, seek, and find answers to existing problems with confidence. This learning emphasizes getting real experience based on investigation, observation, and discovery in activities so that it can involve active students in learning activities. To make it more interesting, the researchers also used flash video as a learning medium in this

study. This learning media, the researchers compiled using Power Point tools, then the researchers published it in Ispring Suite Free into a swf file.

Material and Methods

Research Subjects and Objects

The subjects of this study were 20 grade 6 students of SD GMIM 364 Ratatotok in the 2020/2021 school year. The 20 students consisted of 11 female students and 9 male students. While the object of this research is the application of the Flash Video-Based Inquiry Learning Model to Improve Critical Thinking Skills and Science Learning Outcomes.

Procedure Design, and Learning Improvement

1. Design of Learning Improvement Research Procedures

Based on the research design, this study used a class action research design or classroom action research [5].

2. Learning Improvement Scenarios

The application of inquiry-based learning with the aid of flash video media on the material of special characteristics of animals and plants to improve critical thinking skills and learning outcomes of 6th grade students in this study is described in four main activities. In this study, the improvement of learning carried out was divided into 3, namely: Pre-cycle, cycle I, and cycle II. In cycle I and cycle II, the cycle consists of 4 stages, namely: planning, action, observation and reflection.

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a. Cycle I

1. Planning Stage

At this planning stage, the researcher will explain what, why, when and where. Activities carried out before taking action are:

a. Initial reflection: determine data sources, determine research sources.

b. Determine and formulate action plans for the activities carried out, namely compiling learning instruments and research instruments.

2. Action Implementation Stage

At this stage the plans prepared at the previous planning stage will be tested in a lesson. learning activities must be in accordance with the previously prepared plan. This is done to optimize the strategies used to achieve the learning objectives of the researchers so that they are as expected

3. Stage of Observation (Observing)

Observation is one of the data collection tools used in research. Through this observation, it can be seen that some learning activities have improved in terms of teacher performance and student involvement in the learning process. Observations are also carried out to determine the suitability between the plans that have been designed previously and the implementation of actions that are often carried out.

4. Reflecting Phase
Through observation guidelines and data collection instruments that have been prepared previously, data and information are obtained which are then reflected for further refinement. This improvement is used as consideration for follow-up to be carried out in the next cycle.

In principle, all activities in cycle II are the same as activities in cycle I. Cycle II is an improvement in cycle I, mainly based on the results of the reflection of cycle I.
1. Planning Stage
At this planning stage, the researcher will explain what, why, when and where. Activities carried out before taking action are:
a. Initial reflection, at this stage the activities include: determining data sources, determining research sources.
b. Determine and formulate action plans for the activities carried out, namely compiling learning instruments and research instruments.
2. Action Implementation Stage
3. Stage of Observation (Observing)
4. Reflecting Phase

C. Data Collection Techniques
Observation, self-assessment, assessment between friends are used to observe the activities of students during learning. The test is used to measure the students' learning mastery. The test used is in the form of a description.

D. Data Analysis Techniques
There are two data analysis used in this study, namely qualitative and quantitative data analysis. Qualitative analysis is used to provide information that describes the improvement of critical thinking skills and learning outcomes, as well as the implementation of inquiry-based learning assisted by flash video media on the material on special characteristics of animals and plants in grade 6. Quantitative analysis is used to analyze the value of student learning outcomes in learning. Inquiry-based using flash video media on the special characteristics of animals and plants in grade 6 (7,8).

E. Success Criteria
This research is declared successful if:
1. The average value of students' critical thinking is B (good) and none of the students scores C (enough) or D (needs guidance);
2. Student learning outcomes 75% reach the KKM
If it meets these requirements, then the research has been successful and does not need to be continued in the next cycle.

Results and Discussion

A. Research Results

1. Cycle I

a. Description of Cycle I

The remedial action of learning begins in cycle I. In the cycle, flash video-assisted inquiry learning is applied to the material on the special characteristics of plants. The learning activities lasted for 3 meetings.

During the learning process, the researcher observed the students' activities to measure their critical thinking skills. In order for optimal observation results, researchers also make observations during other learning activities. The researcher also asked Christian Religion teachers and Physical Education, Sports, and Health teachers to make observations when they were teaching in the research class. This is an attempt by researchers to make their observations more accurate and objective. The total number of observations is 24 times. In addition, the researcher also invited students to conduct self-assessment and peer-assessment. The results of self-assessment and among friends are then added up with 2 teacher observations to find the final score. The formula for the value of critical thinking (NBK) is as follows:

The value of critical thinking of students is as follows: the value of critical thinking of students of grade 6 Cycle I is an average of 80 (Good)

Information:

Value Range	Category	Value
00 – 65	Need guidance	D
66 – 75	Enough	C
76 – 85	Good	B
86 – 100	Good	A

In order to facilitate the measurement, these values are summarized as follows:

Table 1: Recapitulation of Critical Thinking Values for Class 6 Students Cycle I

No.	Value Range	Total	Percentage (%)	Criteria	Value
1.	00 – 65	0	0	Need guidance	D
2.	66 – 75	6	30	Enough	C
3.	76 – 85	10	50	Good	B
4.	86 – 100	4	20	Very good	A

Data on the value of critical thinking there are 6 students whose critical thinking scores are C (enough), 10 students are worth B (good), and 4 students are worth A (very good). Based on these findings, it can be concluded that students' critical thinking skills are on average good with a score of 80. This indicates that students' thinking skills are increasing. Learning outcomes were measured through a written test of specific plant characteristics in accordance with the critical thinking scoring rubric as follows: data on science learning outcomes for students in grade 6 Cycle I, the average was 76.65.

Information:

BT = Not Completed KKM, score < 75 T = Completed KKM, score 75

Table 2: Data Recapitulation of Science Learning Outcomes Class 6 Cycle I

No.	Value Range	Total	Percentage %)
1.	00 – 54	1	0
2.	55 – 64	3	15
3.	65 – 74	3	15
4.	75 – 84	10	50
5.	85 – 94	2	10
6.	95 – 100	1	5

Based on these data, it can be seen that there are still 7 students who have not completed, namely students whose grades are below 75. There are 13 students who have completed or it is concluded that 65% have completed their KKM.

a. Cycle I . Observation Results

Observation activities during the implementation of activities in Cycle I were carried out by researchers and teachers, and teacher observations by supervisors (principals). In Cycle I, the researcher observed students' learning activities to measure their critical thinking skills. In this cycle the assessment of critical thinking skills is carried out through teacher observations of students, self-assessment, and peer-assessment. The results of student observations have been recorded and recorded in the observation sheet. In addition, researchers also measure student learning outcomes through evaluation.

b. Reflection Cycle I

Cycle I showed an increase in critical thinking skills. This proves that inquiry-based learning with the aid of flash video on special features of plants and animals is successful, although not yet optimal. The critical thinking score of students is on average 80 or is in the good category and is worth B. Researchers will continue this learning improvement action in Cycle II because there are still 6 students whose critical thinking scores are C (enough).

If it is calculated from the learning outcomes, then this learning improvement action has also been successful, although not yet optimal. Before the first cycle, only 4 students or 20% completed the

KKM, after the first cycle there were 13 students or 65% who completed the KKM. Based on these results, it can be concluded that the corrective actions taken have not been optimal, because 75% of students have not reached the KKM. Therefore, corrective action needs to be taken in the next cycle.

Although it still needs improvement, this cycle has shown several advantages, including:

(1) improvement of critical thinking skills and learning outcomes;

(2) the attention span of students during learning is longer;

(3) learning the inquiry model improves students' critical thinking skills;

(4) the use of technology is an element of surprise that is liked by students.

In addition to having advantages, this cycle also has disadvantages that must be corrected in the next cycle:

(1) there are still students who are less active in participating in the learning process well and are noisy alone with their friends;

After analyzing the cycle I which had not been successful, the researcher decided to take corrective actions for learning in Cycle II

3. Cycle II

a. Description of Cycle II

The activities in Cycle II are almost the same as Cycle I. It's just that in Cycle II the material focuses on the special characteristics of animals.

1. Evaluation

In Cycle II, the researcher observed students' learning activities to measure their critical thinking skills. In cycle II, critical thinking skills were assessed through teacher observations of students, self-assessment, and peer-to-peer assessment. The results of self-assessment and among friends are then added up with 2 teacher observations to find the final score. The formula for the value of critical thinking (NBK) is as follows:

The following are the results of the observations: the value of critical thinking of students in grade 6 Cycle II, average = 85 (Good)

Information:

Value Range	Category	Value
00 – 65	Need guidance	D
66 – 75	Enough	C
76 – 85	Good	B
86 – 100	Very Good	A

The data is presented in the recapitulation as follows:

Table 3: Recapitulation of Critical Thinking Values for Class 6 students Cycle II

No.	Value Range	Total	Percentage (%)	Criteria	Value
1.	00 – 65	0	0	Need Guidance	D
2.	66 – 75	0	0	Enough	C
3.	76 – 85	12	60	Good	B
4.	86 – 100	8	40	Very Good	A

Based on the data on the value of critical thinking, it can be found that the overall value of critical thinking increases. The average value is 85 and is in the good category with a B grade. There are no students who need guidance or are in the sufficient category. Thus it can be concluded that the critical thinking skills of students have increased optimally. Just like Cycle I, in Cycle II learning outcomes are also measured through evaluation that contains critical thinking skills. Data on science learning outcomes for 6th grade students in Cycle II, the average = 89.25

Information:
BT = Not Completed KKM, score < 75 T = Completed KKM, score 75

Table 4: Data Recapitulation of Science Learning Outcomes for Class 6 Students Cycle II

No.	Value Range	Total	Percentage (%)
1.	00 – 54	0	0
2.	55 – 64	0	0
3.	65 – 74	2	10
4.	75 – 84	3	15
5.	85 – 94	11	55
6.	95 - 100	4	20

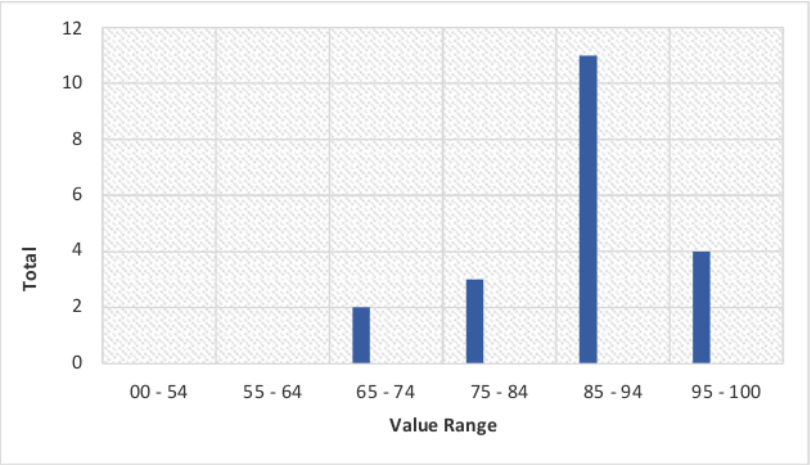

Figure 1. Graph of Science Learning Outcomes Grade 6 Students Cycle II

Based on these data, it can be concluded that there are 18 students or 90% who have completed their KKM. Thus, this learning improvement action was declared successful.

b. Cycle II Observation Results

Observation activities during the implementation of activities in Cycle I were carried out by researchers and teachers, and teacher observations by supervisors (principals). In Cycle II, researchers also observed learning activities students to measure their critical thinking skills. In this cycle the assessment of critical thinking skills is carried out through teacher observations of students, self-assessment, and peer-assessment. The results of student observations have been recorded and recorded in the observation sheet. In addition, researchers also measure the success of student learning through evaluation using critical thinking questions. Based on the observation and evaluation of Cycle II learning activities, the following were found:

1) in this second cycle of learning activities the researcher/teacher carries out the second corrective action in the form of inquiry-based learning assisted by flash video media

2) students seem enthusiastic and enthusiastic about participating in learning, especially with observation activities at the beginning of the activity that make students excited, with virtual tours, students' insight and knowledge will increase, and they learn in a more fun way;

3) the learning atmosphere becomes more fun, teachers and students can ask questions freely;

4) the teacher succeeded in inviting students to enjoy learning science with the inquiry method;

5) the concentration power of students has increased, the attention span is longer and is focused on learning;

6) the use of video becomes a surprise element that is liked by students, because it is easy to use and looks attractive;

7) critical thinking skills increase even though the average value is in the good category with a B

value, but in Cycle I the average value is 80, while Cycle II the average is 85. This shows an increase in students' critical thinking skills and is no longer available. again students who scored C (enough);

8) student learning outcomes increase, if initially only 11 students or 55% have completed the KKM, after the second cycle 18 students or 90% have completed the KKM;

9) his skills in observing and experimenting in learning are improved;

10) his skills in collaborating in group work also improved.

Cycle II Reflection

Cycle I showed an increase in learning outcomes, if initially only 11 students or 55% had completed the KKM, after the second cycle 18 students or 90% had completed the KKM. Based on these results, it can be concluded that the corrective actions that have been carried out have been optimally successful, because there have been 75% or more students who have reached the KKM. Therefore, corrective action was not continued.

Although it still needs improvement, this cycle has shown several advantages, including:

(1) improvement of critical thinking skills and learning outcomes;

(2) the attention span of students during learning is longer;

(3) inquiry learning has improved critical thinking skills and student learning outcomes;

(4) the use of flash videos makes learning more interesting

Discussion

Inquiry-based science learning with the aid of flash video media on the special characteristics of plants and animals generally takes place in 2 cycles, and each cycle takes place in 3 meetings. Cycle I and Cycle II learning activities are the same. The first and second meetings were used for the application of inquiry learning through observing the special characteristics of plants and animals, while the last meeting was used for evaluation.

Through inquiry-based learning assisted by flash video media, the learning process becomes more fun, students are more active, they try a lot, ask questions, and discuss. If they have doubts, students are not ashamed to ask. When asked a question, students also dared to answer even though it was not necessarily true. This is like Dewey's statement in Alec Fisher (2009) that critical thinking is essentially an active process in which a person thinks deeply about things, asks questions for himself, finds relevant information for himself rather than accepting things from others [7,8,9].

The media used is also in accordance with the learning objectives or competencies set. The media is also easy to make, while the student demonstrations come from their respective homes. Through inquiry-based learning, students are maximally involved with all their abilities in searching and investigating systematically, critically, and analogically so that students can formulate their own findings with confidence [10,11,12].

In the application of inquiry-based learning, students become more active. They claimed that it was easier to understand the subject matter with the inquiry method. The application of inquiry learning in this study was in accordance with the characteristics of inquiry learning according to Majid [13,14,15], namely:

1. Inquiry learning emphasizes participants' activities maximally to seek and find;
2. All student activities are directed to seek and find the answer to a problem/question by themselves so that it raises an attitude of confidence;
3. the purpose of using inquiry learning is to develop critical, systematic, and logical thinking skills. This is the same as the purpose of this research, which is to improve critical thinking skills and learning outcomes of 6th grade students of SD GMIM 364 Ratatotok.

Based on the scheme of the learning process, it can be found that there are many student activities. Starting from dividing groups, preparing plants or animals to be studied, listening to flash videos prepared by the teacher, making observations, discussing, compiling reports, presentations, to evaluations. During the learning process, students actively participate and carry out activities well. Although there were still some children who were less active in Cycle I, this was improved by being more active in Cycle II. This indeed proves that inquiry-based learning is more active for students, because students are conditioned to be active during the learning process.

2. The results of the application of inquiry-based science learning assisted by flash video media to improve critical thinking skills and student learning outcomes.
This learning improvement action was declared successful in 2 cycles of action. This statement is evidenced by the results of research in the form of improved critical thinking skills and learning outcomes of 6th grade students of SD Gmim 364 Ratatotok. In order to more easily know the development or increase in the value of critical thinking in Cycle I and Cycle II, the following data is presented in the form of recapitulation of critical thinking values from pre-cycle activities to Cycle II:

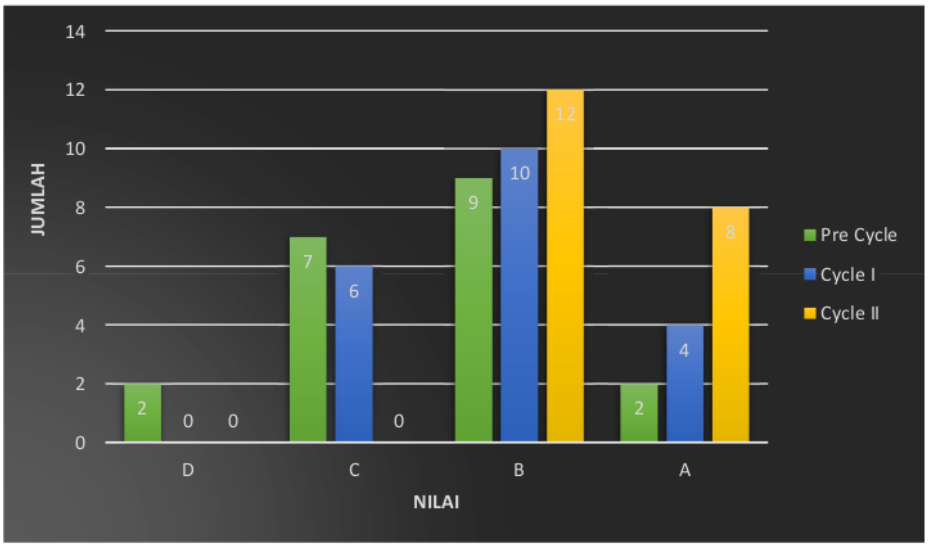

Figure 2. Graph of Critical Thinking Values for Class 6 Students Pre-Cycle I - Cycle II

Based on these data, it can be found an increase in the value of students' critical thinking. Before the action (pre-cycle) there were 2 students with D grades (needs guidance), but after the action there were no more. Before the action, there were 7 students with a grade of C (enough), but after the first cycle with a grade of C (enough) there were only 6 students, while in the second cycle there were absolutely no students with a grade of C (enough).

Before the action, there were 9 students with a B (good) score, in the first cycle it rose to 10 students, while in the second cycle it became 12 students. In the pre-cycle data, there were only 2 students with A grades, in the first cycle there were 4 students, while in the second cycle there were 8 students. So based on these findings, it was concluded that the application of inquiry-based science learning assisted by flash video media on the special characteristics of plants and animals was declared successful in improving the critical thinking skills of 6th grade students of SD GMIM 364 Ratatotok.

In addition to measuring critical thinking skills, this research also measures student learning outcomes. Learning outcomes are measured using evaluation questions that contain critical thinking questions. To make it easier to observe the development of students before and after the action, the following researchers present a summary of their values starting from the pre-cycle:

The graph is as follows:

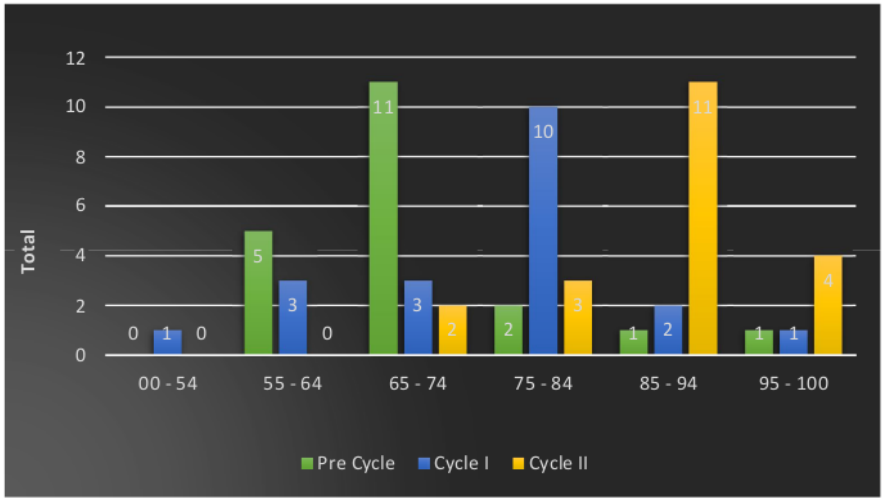

Figure 3. Graph of Learning Outcomes Recapitulation of Class 6 Pre-Cycle – Cycle II

Based on the recapitulation data and graphs, it can be concluded that the application of inquiry-based science learning assisted by flash video media on the special characteristics of plants and animals is successful. Before the action, only 4 students or 20% completed the KKM, but after the action the students' learning outcomes

The number of students increased drastically to 13 students or 65% in the first cycle, and 18 students or 90% in the second cycle who had completed the KKM. So based on the observations

and learning outcomes of students after working on critical thinking evaluation questions, it can be concluded that critical thinking skills and student learning outcomes increase. This proves that the actions taken by applying inquiry-based science learning assisted by flash video media on the material on the special characteristics of plants and animals are successful. Thus, it is not continued in the next cycle.

During the learning process, the researcher found something unique related to critical thinking skills and student learning outcomes. There are 2 unique students. The first is students whose learning outcomes are high from the start (100) but their critical thinking skills are less prominent. It turns out that the student has a lack of confidence in expressing opinions or asking questions orally, whereas if he thinks through writing he is very superior. In Cycle II, the critical thinking skills of these students increased to A (very good). This is because these students are aware of the importance of having the courage to express opinions and ask questions orally (based on researcher interviews with students). On the contrary, there are students who are always noisy at first, always answer the teacher's questions even though the answers are not always correct, dare to have an opinion, but seem to just answer. The student has low thinking skills, because he has difficulty focusing, so he does not think optimally. In the last cycle, the researcher was surprised by the students, because the evaluation results were worth 100 even though their critical thinking skills were only 79, but they were already in the good category.

These two unique things are a special note for researchers, that each student is unique and has his own learning style. It turns out that in the author's class there are students who are very shy, but on the contrary there are also students who are too confident. In the future, researchers must pay more attention to the uniqueness of each student, so that the application of any learning can be maximally successful.

Conclusion

The results showed an increase in students' critical thinking skills, as well as improving their learning outcomes. Where, before there was a decrease in the value of C from cycle I to cycle II, then there was an increase in the values of B and A from Cycle I to Cycle II in flash video-assisted learning on the special characteristics of plants and animals, which were declared successful in improving critical thinking skills of 6th grade elementary school students. GMIM 364 Ratatotok. Critical thinking skills and student learning outcomes increase. This proves that the actions taken by applying inquiry-based science learning assisted by flash video media on the material on the special characteristics of plants and animals are successful.

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