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Improving Student Learning Outcomes on Earth Layers Material by Using Audio Visual Media

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ABSTRACT

Purpose of the study: The researcher aims to determine the increase in student learning outcomes in the earth's layers material by using audio-visual media.

Methodology: This research is classroom action research. The subjects in this research were 7th grade students with a total of 39 students using a simple random sampling technique. The data collection instruments in this research consisted of multiple choice questions, observation sheets for teachers and students and documentation. Data analysis uses descriptive statistical analysis.

Main Findings: The results of this research found that by using audio visual media students were more enthusiastic in participating in learning and with the help of discussion methods students were more active and discussing with groups, with audio visual media students' learning outcomes also increased, from the learning of each cycle in class VII F students a number There were 39 students who had not achieved learning completeness, 20 students in cycle I and 2 students in cycle II. After implementing the learning actions, there were still 2 students whose scores were less than 75 or had not reached the minimum completeness criteria of 75. Then these students were given further study guidance and given remedial measures.

Novelty/Originality of this study: The novelty of this research is that it shows adaptation to students' learning styles or individual needs in the context of earth layer material, this can be considered an innovative step. A personalized learning approach can increase learning effectiveness.

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1. INTRODUCTION

Learning is basically a process carried out by teachers and students so that a learning process occurs in the sense of changes in the behavior of individual students themselves. These changes are international, positive-active, and functionally effective. Changes in learning outcomes can be shown in forms such as skills, habits, attitudes, acceptance or appreciation [1], [2]. These changes can include one's condition, knowledge or actions. This learning objective not only includes mastery of subject matter, but also the process of changing student behavior in accordance with the goals to be achieved [3], [4]. Therefore, mastery of teaching material is not the end of the learning process; rather, it serves only as an interim goal in shaping broader behavior. In the learning process, the influence of technological developments that can be utilized for learning needs becomes increasingly significant [5], [6]. Students are placed as learning subjects who play the main role, so that in the teaching and

learning process setting, students are required to carry out full activities and even study teaching materials individually [7], [8]. Thus, in optimizing the science learning process, there are important components that must be fulfilled.

These components start from concepts that teachers will format to make them meaningful, students' readiness to process and apply information, to environmental management in the context of implementing learning. The science learning outcomes achieved by students in Indonesia which are classified as low are influenced by many factors, namely the characteristics of students and families, reading ability, learning motivation, interest and self-concept, learning strategies, level of attendance and sense of belonging [9], [10]. It is hoped that meaningful science learning will be able to improve the quality of education in Indonesia.

Science education is an important element, the 1968 curriculum was revised with the 1975 curriculum which attempted to develop cognitive, psychomotor and affective aspects. Science is a science that was initially obtained and developed based on experiments (inductive) but in subsequent developments science was also obtained and developed based on theory (deductive) [11], [12], [13]. There are two related things that are inseparable from science, namely science as a product and knowledge [14], [15]. Science in the form of factual, conceptual, procedural and metacognitive knowledge, and science as a process, namely scientific work, namely scientific work [16], [17], [18]. Currently, the object of science study is becoming increasingly broader, including science concepts, processes, values, scientific attitudes, applications of science in everyday life. , and creativity [19], [20].

Based on observations made by researchers at State Junior High School 4 Salatiga on class VII students, science learning is still low. This can be seen from the learning results of students, the majority of whom have not reached the minimum completeness criteria. There are several things that influence student learning outcomes, namely a lack of understanding of science learning, especially material on the layers of the earth, students don't really understand because students don't concentrate enough in learning. And teachers find it difficult to transfer material to students because the characteristics of each student are different.

Teachers' way of teaching tends to be monotonous using lecture, question and answer and assignment methods. For these various problems, it is necessary to make improvements in learning related to the way students can be interested, namely by varying the presentation of learning material in the form of media used by teachers by implementing audio-visual media. It is hoped that the efforts taken to improve student learning outcomes in science subjects covering the layers of the earth using audio-visual media will result in an increase in science learning outcomes. As Allah SWT says in Surah An-Nahl verse 78, which means "And Allah brought you out of your mother's womb while you did not know anything, and He gave you hearing, sight and a heart, so that you may be grateful."

This verse explains that Allah SWT has brought humans out of their mothers' wombs, and given them the gifts of hearing, sight, reason and heart. Therefore, by using audio-visual media that can be heard and seen, students are able to understand and easily understand the learning that will be presented by educators through audio-visual media. humans must be grateful to Allah SWT for giving gifts to humans. Audio visual media is a way of producing or delivering material using mechanical and electronic machines to present learning messages through audio visuals [21], [22], [23].

In line with previous research which found that animated video media as a learning medium on earth layers material was very effective in increasing students' understanding of concepts [24]. So from previous research it can be seen that the conceptual understanding indicators used by students are giving examples, categorizing, comparing and explaining material in the earth's layers categorized as high and medium. However, previous research has not measured the impact of this media on improving student learning outcomes, so this research was conducted to measure student learning outcomes on earth layers material using audio-visual media.

This media can encourage students to want to know more things because besides being able to display pictures, videos or diagrams [25], [26], [27]. Learning is also absorbed through visual sight and audio hearing. In order for the learning process to run optimally, teachers must be able to use the right media for students. Innovative learning media that is adapted to the material to be taught is very important because it will make the learning atmosphere more interesting, fun and prevent students from feeling bored [28]. The use of audio-visual media is considered to have quite good appeal for students because learning uses audio-visual media.

This research offers innovation by using audio-visual media as a learning approach to improve student learning outcomes in the earth's layers. The novelty of this research lies in the application of audio-visual technology as a learning tool that can increase students' interest and understanding of the material. By utilizing audio-visual media, students can experience more interesting and interactive learning, so it is hoped that they can overcome the problem of low learning outcomes in earth layer materials that previously occurred. The implication of this research is to increase the effectiveness of learning in the classroom, where teachers can integrate audio-visual media into their teaching methods. This will help in creating a more dynamic and interesting learning atmosphere for students, thereby increasing their motivation to study and understand the material better.

The urgency of conducting this research lies in the importance of improving student learning outcomes in the field of science, especially in the earth's layers. As an important part of the curriculum, understanding the

layers of the earth has a significant impact on further understanding of geology and the environment. Thus, this research aims to contribute to improving the quality of education in Indonesia by introducing innovative and effective learning methods. Based on the background above, the researcher aims to determine the increase in student learning outcomes in earth layers material by using audio-visual media.

2. RESEARCH METHOD

The design of this research is classroom action research. The aim of classroom action research is to identify existing problems in learning, plan corrective actions, implement these actions, and evaluate the results [29], [30], [31]. The reason researchers use this type of classroom action research is to improve and increase the quality of learning carried out by teachers in the classroom by implementing audio-visual media so that student learning outcomes can increase, especially in science subjects covering the layers of the earth.

Sampling in this study used simple random sampling by lottery. The research subjects in this study were class VII F students at State Junior High School 4 Salatiga with a total of 39 students including 12 female students and 17 male students with the collaborator being the class VII teacher, namely Mrs. Anisa. The research steps are used in a cyclical form, where this cycle does not only last one cycle but can be repeated over and over again until the learning objectives in the class are achieved. This cycle goes through 4 procedures, namely planning, carrying out observations, and reflecting.

Table 1. Stages of classroom action research

Stage	Activity
Planning	1) Make a learning implementation plan using audio-visual media. 2) Prepare the necessary supporting facilities during the learning process. 3) Prepare teacher and student observation sheets to determine the conditions during the learning process. 4) Planning learning actions using audio-visual media. 5) Evaluate learning using audio-visual media.
Implementation of Actions	The implementation of the actions in this research will be implemented using audio-visual media as an aid in conveying learning.
Observation	The observation referred to at this stage is data collection. In other words, observation is a tool for photographing how far the effects of actions have reached the target. The data collected can be in the form of quantitative data (test results, pre-test, presentations, etc.).
Reflection	In this case, the researcher reflects his experience on the screen so that his vision of both weaknesses and shortcomings is clear. In this reflection stage, data analysis is carried out regarding the process, problems, obstacles encountered, and continues with reflection on the impact of implementing the actions taken. If the indicators have not been achieved, then classroom action research will continue with the next cycle at a different time and material through the same stages as the previous cycle.

The forms of instruments used to obtain data are learning implementation plans, teacher observation sheets, student observation sheets and questions to determine student learning outcomes after participating in learning using audio-visual media. The first data collection technique using this test consists of a written test which is used to get grades. The type used is a multiple choice test carried out in cycle I and cycle II. Then observation is the process of collecting data in research where the researcher or observer looks at the research situation. The score on the observation sheet uses a Likert scale of 4, consisting of 4 (very good), 3 (good), 2 (fair) and 1 (poor). The indicators and categories for scores from this research observation sheet are as follows:

Table 2. Teacher observation sheet indicators and category intervals

Indicator	Intervals	Category
Teacher's Ability to Open Lessons	88 – 100	Very good
Teacher Attitudes in the Learning Process	74 – 87	Currently
Mastery of Study Materials (lesson materials)	62 – 74	Not enough
Teaching and Learning Activities (learning process)	49 – 61	Very less
Utilization of Learning Media and Learning Resources		
Learning Evaluation		
Ability to Close Learning Activities		
Follow-up		

As for the width of student observation, it consists of observations of student activity and cooperation during learning. This student observation sheet uses a Likert scale of 3. The following is a table of 3 indicators of the observation sheet and their categories.

Table 3. Student observation sheet indicators and category intervals

Indicator	Interval	Category
Liveliness	92– 117	Good
Cooperation	66 – 91	Enough
	39 – 65	Not enough

Furthermore, documentation is a data collection technique by documenting teaching and learning activities either through photos or recordings. The data obtained by researchers even strengthens the data from the results of observations and tests carried out.

Data analysis was carried out by comparing the scores for each cycle with the minimum completeness criteria set by State Junior High School 4 Salatiga, namely ≥ 75. Therefore, every class VII student is said to have completed studying science subjects if he is able. the score reaches or exceeds the minimum completeness criteria. On the other hand, students are said to be incomplete if their score is less than the specified minimum completion criteria. Student learning outcomes are collected in the form of data. The collected data was analyzed using descriptive percentage analysis.

3. RESULTS AND DISCUSSION

In this classroom action research, the place chosen was State Junior High School 4 Salatiga. With the subject studied, there were 39 students in class VII F. Classroom action research consisted of two cycles. This pre-cycle is carried out before actions that use learning media. In this way, the researcher conducted a pre-cycle which was carried out before the research action to determine the level of students' understanding before taking action using audio-visual media. This pre-cycle consists of 10 multiple choice questions.

At the planning stage, researchers must carry out before conducting learning. The planning was carried out by researchers in class VII F of State Junior High School 4 Salatiga with a total of 39 students. This research took place during one face-to-face meeting. The material taught in cycle I is about the layers of the earth using audio-visual media. The questions given are multiple choice questions consisting of 10 questions with a sub-chapter on layers of the earth. The making of this first cycle observation instrument is to find out how active and cooperative students are in learning during the implementation of learning in class. The instruments used in this research are student observation sheets and teacher observation sheets during the learning process which contain information about the class conditions from the beginning to the end of the lesson and even to the end of the evaluation after the cycle.

After the planning stage, the researcher carried out research actions guided by the learning implementation plan that had been made previously. This research was carried out in class VII F of State Junior High School 4 Salatiga with a total of 39 students. This research was carried out using audio visual media. Cycle I was carried out in one meeting using learning tools in accordance with the Lesson plan. Learning activities in cycle I are divided into three stages, namely the initial stage, core activity stage and closing activities. During the initial lesson, learning begins with the teacher entering and opening greetings, then continues by inviting students to pray together and taking attendance. when the teacher says hello the students answer simultaneously and when praying the students also pray.

After praying the teacher took attendance, everyone was present. After that, the teacher checks the students' readiness to start learning activities by providing motivation. As a form of reviewing the material, the teacher asks the students a few questions and the students answer with different answers. Because it was felt that the class was busy with students' answers, the teacher took the initiative before answering the question, they had to raise their hands. Next, the teacher conveys the learning objectives that will be achieved at the meeting. Students also pay close attention to the teacher.

In the core activity the teacher provides material about the layers of the earth. However, before the teacher gives the material the students are given time to read the material for a moment. After reading the teacher shows a video about the layers of the earth the students pay close attention to the video and even focus on the video. However, after a while of watching the video, the student sitting at the back suddenly raised his hand and spoke the video not loud enough, so the teacher turned up the volume to maximum. After showing the video, the teacher divides the class into several groups, each group consisting of 4 students. Then the teacher conditions the students to join their respective groups. After that the teacher distributes worksheets to each group.

The teacher actively involves students in every learning activity and the teacher also asks students to discuss working on the worksheet. Then the students carried out the teacher's orders and there were some students who were actively discussing working on the worksheet and there were also those who were just silent. After the

students finished working on the discussion sheet, the teacher asked the students to present the results of the discussion and the students came forward shyly because this was the first time the students had carried out the discussion and presentation method, even though the students shyly carried out the teacher's orders. Because each group had presented it, the teacher explained to the students the material on the layers of the earth that the students had discussed, the teacher explained the material through audio-visual media and the students paid very focused attention.

Learning using media and methods like this is the first to be applied in this class, no one has applied it before so they feel unfamiliar with this media and in the end it can attract their curiosity and increase students' activeness in learning [32], [33], [34]. The response with this media was also very good as evidenced by the enthusiasm for learning of those who worked together to solve the problem. After the core activity is finished and entering the closing activity, the teacher gives students a question sheet containing 10 multiple choice questions as a tool to measure student learning outcomes whether they have reached the minimum completeness criteria or not. even after being given action using audio-visual media.

After that, the final stage, namely closing, the teacher as a teacher provides conclusions and asks the students whether there are still questions? The students were just silent. Then the teacher asked questions to test the students and there were students who answered correctly. So the teacher closed the lesson that day by praying together and ending with greetings, the students answered at the same time. Based on the results of the first cycle of learning using audio-visual media at State Junior High School 4 Salatiga, 19 students or 48.7% completed it with an overall average score of 72.05. The average score does not show an increase in learning outcomes because the score is still below the minimum completeness criteria, for individual schools, namely 75. The percentage of completeness which is only 48.7% also does not show any improvement and has not reached the required completeness limit, namely ≥ 85%. Therefore, researchers must continue the research to cycle II according to the predetermined schedule.

This observation stage coincides with learning activities which aim to determine the learning process taking place using audio-visual media. Observations that take place during learning are recorded in an observation sheet. The following are the results of observations of cycle I learning activities using audio-visual media in class VII F of State Junior High School 4 Salatiga. After the first cycle of learning was completed, the teacher's observation results were obtained, namely from 27 observation items consisting of 8 indicators which were assessed, a total score of 76 points was obtained. Based on the range of categories, the observation results show that teachers are still in the medium category. This indicates that in terms of teaching preparation and closing the lesson, the teacher is good at delivering the material.

After observing the learning process of class VII F students using audio-visual media, it was discovered that the aspect of student activity and cooperation in learning cycle I was still in the poor category, this can be seen from the highest number of scores being in the sufficient category. At this reflection stage the researcher evaluated the activities in cycle I. The researcher found several successes achieved. Among them, after the action was given, there was an increase in student test results compared to before the action was taken through audio-visual media. Before the action (pre-cycle), the number of students who completed was 10 students with an average of 60.25 which then increased after the action in cycle 1, namely the number of students who completed was 19 students with an average of 72.05. Some students have actively participated in the ongoing learning process, as evidenced by the results of student observations. In terms of work and activeness, students on average get a score of 2 with the statement that students have a strong desire to ask questions, discuss or have opinions during the learning process.

Even though there have been several successes achieved, there are still many deficiencies found during the learning process activities in cycle I. The deficiencies found include carrying out the teacher's duties, especially during discussions, students not being able to work together well. There are still students who only depend on the theme. This was proven from the results of student observations, 19 students each got a score of 2 with the statement that the students were still shy about exchanging opinions, presenting and being involved in discussions. Some students are still not ready to take lessons. There are still many students who do not pay attention to the teacher's explanations. There are some students who do not appreciate the theme when presenting. Carrying out learning is not in accordance with learning allocations. The speaker used when showing the video is not optimal so students in the back cannot be heard.

To correct deficiencies and pay attention to the successes achieved in cycle I, a plan can be made in the implementation of cycle II. First, motivate students to be more active, pay attention to teachers and friends, dare to present the results of discussions in front, respect friends, and be responsible for the tasks given by the teacher. Second, replace the speakers with better ones that can be heard clearly by students in the class. Third, pay attention to time allocation, so that the implementation of learning is in accordance with the previously planned time allocation.

The making of the second cycle observation instrument was also made to find out how active students are and how cooperative students are in implementing classroom learning. The instruments used by researchers are student observations and teacher observations during the learning process which contain students' conditions from

the beginning of learning to the end and even to the evaluation after the cycle. Making audio visual media in cycle II was also carried out at the same time as several improvements in cycle I, by replacing the speaker which initially had a small volume even though it was already at maximum, it was replaced with a new speaker so that it can be heard from behind and students can focus on the video that will be shown. What is done in this planning stage is to determine the criteria for learning success. Students can be said to have completed or succeeded if the student reaches the minimum completion criteria of 75.

In cycle II, students are used to using audio-visual media and discussion methods, which is proven when students are no longer shy about their presentations or push each other. After presenting the teacher immediately explained the results of the worksheet and explained the material via video. After the core activities are finished, there are closing activities, but before that the teacher gives students a question sheet containing 10 multiple choice items to measure whether students' learning outcomes have been completed or not completed after using audio-visual media.

In the final closing stage, the teacher provides conclusions on the material on layers of the earth, sub-chapter, causes of earthquakes and the risk of earthquakes. After giving the conclusion the teacher asks the students "Do you still have any questions?" but no students answered then the teacher asked the students questions and there were students who answered correctly. So the teacher closed the lesson that day by praying together with greetings. Based on the results of the implementation of cycle II using audio visual media which was carried out in class VII F of State Junior High School 4 Salatiga, it can be seen that the average score of all students in class VII F of State Junior High School 4 Salatiga was 86.41. In the implementation of the second cycle of research, the number of students who completed learning was 37 students (94.87%) while the number of students who did not complete it was 2 students (5.12%) based on these data, it shows that learning in cycle II was considered complete because it had reached the minimum limit. The classical completeness that has been determined is ≥ 85%. Student learning outcomes using audio-visual media increased from cycle I to cycle II. This was the main reason for researchers to stop the research process in the second cycle. Students who have not completed the second cycle will be given independent action in the form of exercises or remedial activities monitored by the teacher.

Implementation of science learning on earth's layers in class VII F of State Junior High School 4 Salatiga. Pre-cycle science learning is still low using the lecture method. This is one of the factors causing why science learning outcomes at State Junior High School 4 Salatiga are still low. And students feel bored and play alone during learning. In the first cycle of data, student learning outcomes data were collected using evaluation. After carrying out research on class VII F students at State Junior High School 4 Salatiga. Researchers can understand that students' actual ability to learn science lessons is very high and they like science learning. Even though in cycle I there were 61% of students who were able to achieve the minimum completion criteria score. This happens because students do not watch videos seriously, and students' learning motivation is still low. When showing the video, the students were very enthusiastic about learning, but there were some students who didn't pay attention because the speaker sound wasn't very clear from behind. Therefore, all obstacles in cycle I were corrected in cycle II.

The implementation of the second cycle of learning using audio-visual media has improved and obtained the expected results because the media and methods motivate students to take part in learning, besides that students are already accustomed to using these media and methods. Students began to be active during learning, this can be seen in the students' activeness in asking and answering questions given by the teacher. Apart from that, students paid attention to learning using audio-visual media and held discussions together. The teacher's motivation also succeeded in making students more enthusiastic. It is proven that there is an increase in student learning outcomes after using audio-visual media.

Based on the learning process that has been carried out by researchers, the distribution and recapitulation values of students were obtained during the pre-cycle, cycle I and cycle II learning processes. The following recapitulation and distribution results can be seen in the table below:

Table 4. Recapitulation sheet for learning outcomes per cycle

cycle	Minimum Completeness Criteria	Category	Frequency	Percentage	Mean
Pre-cycle	≥75	Complete	10	25.64%	60.25
	<75	Not finished	29	74.35%	
Cycle I	≥75	Complete	19	48.71%	72.05
	<75	Not finished	20	51.28%	
Cycle II	≥75	Complete	37	94.87%	86.41
	<75	Not finished	2	5.12%	

The student percentage results have increased in each cycle, as evidenced by the table above. From the recapitulation table above, it can be seen that the average score obtained from the first cycle increased on average to 72.05 when compared with the pre-cycle average of 60.25 and in the second cycle it increased to 86.41. Based on the achievement indicators If the success determined by the researcher has been achieved, there is no need to

conduct further research. Because the target of achieving the minimum class completeness criteria in cycle II has exceeded the classical completeness criteria (85%). The research used audio visual media in the subject of layers of the earth in class VII F students at State Junior High School 4 Salatiga. This research is in line with Widawati's research which states that audio-visual media can improve science learning outcomes. This research is in line with previous research which states that the advantage of audio-visual media is that it encourages student motivation and instills attitudes and other affective aspects [35], [36], [37]. So from these data it can be said that audio visual media can improve student learning outcomes regarding layers of the earth in class VII F of State Junior High School 4 Salatiga.

In line with the results of this research, previous research found that the use of audio-visual media was considered effective in improving learning achievement in Islamic religious education in junior high schools Negeri 1 Palu. This media helps clarify the material being taught and makes learning more interactive and interesting for students [38], [39], [40]. The difference is that previous research highlights the effectiveness of using audio-visual media in improving learning outcomes in Islamic religious education. Even though the topics are different, both emphasize the importance of using audio-visual media in increasing students' understanding of the subject matter. The conclusions of the current research indicate that the use of audio-visual media significantly improves student learning outcomes, with important implications for learning practices at the Negeri 4 Salatiga junior high school.

This research makes a contribution by applying audio-visual media in learning about layers of the earth in class VII F of State 4 Salatiga Junior High School. This approach is an innovation from previous, more traditional learning methods. The use of audio-visual media has been proven to increase students' interest in learning and their learning outcomes. This shows that interesting and innovative learning approaches can have a positive impact on learning outcomes. Although this research was conducted at State Junior High School 4 Salatiga, the results can be considered to represent the potential for using audio-visual media in improving learning in various other secondary schools.

Some possible research limitations include the limited sample size (class VII F), short research duration, and focus on one particular learning topic (earth layers). Additionally, this research may not have considered external factors such as students' motivation levels outside the school environment. For further research, it is recommended to expand the scope of the research by involving more classes or schools, extend the duration of the research to see the long-term impact of using audio-visual media, and explore the use of this media in the context of learning other topics in the school curriculum.

4. CONCLUSION

Audio visual media can improve student learning outcomes by displaying videos and students paying attention to the videos. This means that students are more enthusiastic about learning activities. Before showing the videos, several groups are formed to discuss the material so that students can work together with the group. By using audio visual media students are more enthusiastic in participating in learning and with the help of discussion methods students are more active and discuss with groups, with audio visual media students' learning outcomes also increase, from the learning of each cycle in class VII F students there are 39 students who have not achieved 20 students completed their learning in cycle I and 2 students in cycle II. After implementing the learning actions, there were still 2 students whose scores were less than 75 or had not reached the minimum completeness criteria of 75. Then these students were given further study guidance and given remedial measures. Based on the results of the research described above, it can be concluded that audio-visual media with the help of discussions can improve student learning outcomes regarding layers of the earth at State Junior High School 4 Salatiga. For further research, it is recommended to expand the scope of the research by involving more classes or schools, extend the duration of the research to see the long-term impact of using audio-visual media, and explore the use of this media in the context of learning other topics in the school curriculum.

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