

# The Use of Audio Visual Media in Science Learning About the Solar System to Improve the Learning Outcomes of Grade VI Students of SDN 68 Pekanbaru

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**Abstract:** This study aims to determine how the use of audio-visual media in learning Natural Science about the solar system can improve student learning outcomes. This study is a Classroom Action Research conducted in 2 cycles. The subjects in this study were 31 students of grade VI of elementary school. The data collection technique used the instrument of teacher observation sheets, students and multiple choice questions. The results of observations of teacher activity in cycle I were 72%, student activity in cycle I reached 62.5%, and in cycle II teacher activity increased by 95% and student activity by 94%. Likewise, the average student learning test in the pre-cycle stage was 63, in cycle I it was 68 with a classical completion percentage of 68% and in cycle II the average student learning outcome test increased to 85 with classical completion reaching 87% so that the study can be said to be successful because it has achieved the expected completion. The use of audio-visual media in learning Natural Science about the solar system can improve the learning outcomes of grade VI students of elementary school.

**Keywords:** *Audio visual; Solar system; Learning outcomes*

## 1. INTRODUCTION

The success of a nation's development is largely determined by the quality of human resources and the quality of life of the nation (Deno., et al 2020). Knowledge-based education is expected to be able to produce quality human resources so that they can meet the demands of the times (Wijaya., et al 2016). To realize this, education is more directed at mastering 21st-century skills, namely skills in learning and innovation, skills in using technology and information media, and good life skills. Entering an era full of competition, every individual must have 21st-century skills such as asking questions, thinking creatively, thinking critically, decision-making and problem solving in order to be able to choose between the information they receive, interpret information and produce new knowledge (Kan & Murat, 2018). According to (Marwa, 2024) the future research directions in developing 21st-century skills can be multifaceted, addressing various gaps and limitations in assessment methods, technology integration, cultural contexts, equity and access, and teacher training and professional development. 21st-century education involves aspects of skills and understanding, but also emphasizes aspects of creativity, collaboration and speaking skills. Some also involve technology, behavior, and moral values, in addition to emphasizing critical thinking and communication skills that provide more challenges in the process. 21st-century education at the elementary school level is the first door for children to enter formal education. This level is an important level of education as a preparatory step for children to gain basic skills or to continue to a higher level. One of the subjects that plays an important role in education is the subject of Natural Sciences (Fajria., et al 2023).

Science learning teaches students to use critical and creative thinking in solving complex problems related to science and technology. Natural Sciences or better known as IPA is a subject that studies nature and its contents. IPA has an important role in the development of science and technology. Given this, students are required to master the IPA material thoroughly (Hidayah., et al 2017).

Science is a science that studies everything on earth and space which is systematically arranged based on information obtained from various activities of scientists. In line with sophisticated technology, the process of observation, investigation in natural science has now become easier. This has a major influence in the field of education to facilitate the process of delivering learning in schools, namely in the use of media in the learning process (Fujiyanto., et al 2016).

Students are one of the objects of education that is required to be more active in learning. However, in reality, science learning in elementary schools often focuses on textbooks that contain theories so that they do not get direct experience (Fridayanti, 2022). In the solar system material, students cannot make direct observations, this is because the material being studied relates to a certain process that occurs outside the earth such as the rotation of the earth, the revolution of the earth, the orbit of the planet and others. An intermediary tool is needed to be able to explain in detail to students about the material.

This rapid progress of the era certainly requires teachers to be creative, innovative and flexible in implementing the learning process. One indicator of pedagogical competence is in the process of delivering learning to develop and utilize media and learning resources. In addition to the use of student books, teachers also need tools that can clarify teaching materials in the process of delivering learning to students. The tool in question is the use of learning media to clarify the message conveyed by the teacher. Good media can certainly provide maximum learning outcomes (Fajria., et al 2023). learning outcomes are results obtained after going through a learning process in the form of changes in behavior that can be measured in the form of knowledge, attitudes and skills (Jumilat, 2018). Based on the results of observations of student grades in the previous year at one of the Public Elementary Schools in Pekanbaru, it was found that Student Understanding of the Solar System was still Low, as seen from the Student Learning Achievement Score which was still low and there were still many students who did not reach the KKM. This is because the Science Lesson on the Solar System Discusses Celestial Objects that are difficult to present in the Classroom. Student learning activities are very lacking when the teacher delivers teaching materials, students are less motivated to follow the lesson, students' responses to the material are lacking, so that students' absorption of understanding is low. The teacher's teaching method still uses conventional methods such as lectures which cause boredom in students in following the learning (Hermanto., et al 2021).

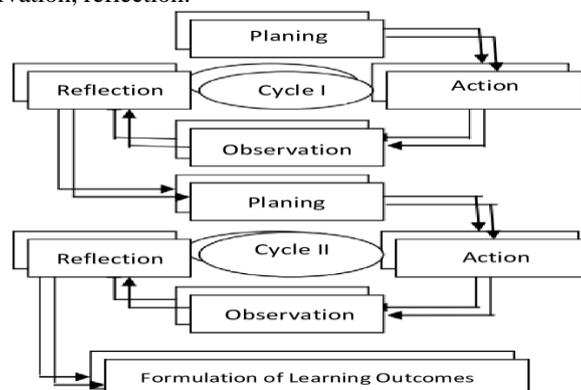
Conventional learning that is monotonous and does not stimulate active learning for students can result in reduced interest in learning for students, so that it can make it difficult to achieve national education goals optimally. This also has an impact on the low involvement of students in learning which will then affect their thinking skills and learning outcomes (Rehalat, 2016).

Low student learning outcomes are one of the problems in learning in schools. Students will be more interested and interested in learning if the learning media is different from usual so that learning is not boring. Therefore, there needs to be an improvement in the learning process that supports the delivery of mathematics material so that it is easier for students to understand, and one of the facilities and infrastructure that can help during the learning process is learning media.

Therefore, the right media is needed in delivering solar system material, one of which is using audio-visual media. because the use of audio-visual media involves more senses than other teaching aids so that students can see and hear. The learning process of students in participating in learning no longer seems abstract because with audio-visual media students can see directly and also listen to what they are learning, so that science learning about the solar system can be easier for students to understand (Sulihin & Elihami, 2020). Based on the background above, the researcher is interested in conducting research on the use of audio-visual media in science learning about the solar system to improve the learning outcomes of elementary school students. The formulation of the problem of this study is: (1) Can the Use of Audio-Visual Media in Learning Natural Science About the Solar System Improve the Learning Outcomes of Elementary School Students and (2). How Can the Use of Audio-Visual Media in Learning Natural Science About the Solar System Improve the Learning Outcomes of Elementary School Students.

## 2. METHODS

This research is a quantitative research with the design of Classroom Action Research (CAR), with stages of planning, implementation, observation, reflection.



**Figure 1. picture siklus 1 and 2**

The subjects of this study were 31 sixth grade students at a public elementary school in Pekanbaru, consisting of 16 male students and 15 female students. The data collection techniques used were observation (teacher &

student activities), interviews (teachers and students), documentation, and tests. Observation is a method of data collection carried out through observation and recording of student and teacher activities in teaching and learning activities by filling in the observation sheets that have been set. The test used to see student learning outcomes is carried out at the end of each cycle. The results of the analysis of teacher and student activity data (field notes) were obtained from the teacher and student activity observation sheets filled in by observers while learning was taking place, interview results, and documentation, analyzed using qualitative analysis steps (marking / coding, grouping, creating themes / research answers). The test results (repetitions) were analyzed using the average and percentage formulas. Indicators of success in increasing student learning outcomes are indicated by the increase in student learning outcomes from cycle to cycle, namely the increase in student learning outcomes is marked by the achievement of KKM 70 science subjects reaching 80% at the end of the cycle.

### 3. FINDINGS AND DISCUSSION

#### 1. Can the Use of AudioVisual Media in Natural Science Learning About the Solar System Improve Elementary School Students' Learning Outcomes?

This research was conducted in 2 cycles. Before Cycle 1, the researcher conducted a pre-cycle to determine the ability of the initial learning outcome test of students on the solar system material. The student learning outcomes in the pre-cycle are shown in the table below:

**Tabel 1.** Recapitulation of pre-cycle learning outcomes

Number	Description	Pre-cycle results
1	Number of students who completed	10
2	Avarage test score	63
3	Higher Score	80
4	Lower Score	47

Based on the table above, it was found that 10 students completed the learning process and 21 students did not complete it. From the table above, it is known that student learning outcomes are still low. This shows that the test results before the researcher entered the first cycle or also called the pre-cycle, the average value of the student learning test was 63, which means it is far from the expected value. Furthermore, the researcher conducted research in cycle I and continued to cycle II. The results of the study showed that the implementation of student and teacher activities during learning using audio-visual media in science learning about the solar system in each cycle increased. This is shown in the observation data for each cycle below:

**Tabel 2.** Teacher and Student Observations in Cycle I and Cycle II

Number	Observation	PTK Result	
		Cycle I	Cycle II
1.	Observation of teacher activities	72%	95%
2.	Observation of student activities	62,5%	94%

From the data above, it shows that the results of the observation of teacher activities in cycle I reached 72% with a good category and the results of the observation of student activities reached 62.5% with a sufficient category. In conducting research in cycle I, some students paid attention and some did not pay attention to the teacher's explanation. The researcher saw that in the learning process in cycle I there were still students who played alone with their friends and did not pay attention to the teacher and the teacher was less than optimal in attracting students' attention in delivering the material. Judging from the results of the observation of student and teacher activities that were less than satisfactory, the researcher continued the research in cycle II.

Based on the observation data, teacher and student activities in cycle II increased as evidenced by the results of teacher observations reaching 95% with a very good category, and student activities reaching 94% with a very good category. This shows that the expected learning activities have been achieved. in cycle II, many indicators were met by students from improvements in the Actions in cycle I. After the actions were carried out in cycle II,

many changes began to occur, including the level of seriousness of students in paying attention to the material becoming good, students' initiative to ask questions increased and students were able to make conclusions.

To find out the level of students' understanding of the learning material can be seen from the results of the student's learning test. The results of the student's learning test can be seen in the following table:

**Tabel 3.** Learning Test Results on Cycle I and Cycle II

Number	Observation of Learning Outcomes	Cycle I	Cycle II
1.	Test Average	68	85
2.	Classical completion percentage	68%	87%
3.	Higher Score	87	100
4.	Lower Score	47	67

From the table above, it can be explained that by using Audio Visual Media on the solar system material for grade VI of elementary school, the average student learning score in cycle I was 68 and learning completeness reached 68% or there were 21 out of 31 students who had experienced learning completeness. In cycle II, the average student learning outcome test was 85 with a classical completeness percentage reaching 87%. This shows a significant change in value from cycle I to cycle II.

In this study, the teacher used Audio Visual Media to increase student activity in the teaching and learning process so that in the teaching and learning process, the activity was not only dominated by the teacher, thus students would be involved physically, emotionally and intellectually so that later the concept of the Solar System taught by the teacher could be understood by students. Thus, the use of Audio Visual Media has been proven to improve student learning outcomes in the Solar System (IPA) lesson for grade VI of elementary school. This is also supported by research conducted by Ondriadi (2018), the results of his research showed that the results of classroom action research using a two-cycle pattern were able to test the action hypothesis proposed in this study. The results indicate that in cycle II classically, the expected learning outcomes have been achieved, because students who scored  $\geq 70$  were only 90% greater than the desired completion percentage of 85%. The use of demonstration methods and audio-visual media that are adjusted to the teaching material can help students to understand the learning material presented more easily than using only the lecture method.

The results of this study are supported by relevant research from (Shobihah, 2018) with the research title "Implementation of Audio-Visual Media to Improve Understanding of the Solar System in Class VI Students of SDI Ma'arif Kejawanan Gempol Pasuruan" stating that there was a change in the final test results that were further improved after using audio-visual media. With the development of science and technology, learning models not only guide students to understand theoretical subjects, but must also be able to be applied to every change and dynamic problem that occurs in the environment (Safitri., et al 2014). So the role of the media is very important to clarify, simplify and make the learning system more interesting with the material taught (Mawarni., et al 2015). Therefore, audio-visual learning media can be used as an alternative for researchers so that students' science learning outcomes meet the learning outcomes according to the KKM set by the school.

## 2. How the Use of Audio Visual Media in Natural Science Learning About the Solar System Can Improve Elementary School Students' Learning Outcomes

From the results of the analysis of teacher and student activity data (field notes) and interviews related to the use of Audio Visual media in Natural Science Learning about the Solar System, the following findings were produced: (1)Audio Visual Media can allow for clear images, videos, and animations about the Solar System. This helps students understand complex concepts better through interesting visualizations. (2)Audio Visual Media can be designed to be interactive, so that students can be actively involved in learning. This makes learning more interesting and enjoyable for students. (3)Interesting and interactive visualizations in audio visual media can motivate students in learning. Students tend to be more motivated to learn when the material is presented in an interesting way. (4)Audio visual media can be used as a source of independent learning for students outside of class hours. Students can access videos about the solar system to deepen their understanding. From the points above, we can conclude that the use of audio visual media in natural science learning about the Solar System in class can increase the effectiveness of learning and enrich students' learning experiences.

#### 4. CONCLUSION

Based on the results and discussion above, it can be concluded that the results of observations of teacher activity in cycle I were 72%, student activity in cycle I reached 62.5%, and in cycle II teacher activity increased by 95% and student activity by 94%. Likewise, the average student learning test in the pre-cycle stage was 63, in cycle I it was 68 with a classical completion percentage of 68% and in cycle II the average student learning outcome test increased to 85 with classical completion reaching 87% so that the study can be said to be successful because it has achieved the expected completion. Thus, it can be concluded that the use of audio-visual media in science learning about the solar system can improve the learning outcomes of grade VI elementary school students.

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