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The Effectiveness of the Application of Audio Visual Learning Media on Student Learning Outcomes in Class III Natural Science

Rini Juriyah[1*], Hanif Amrullah ZA[1], Nurul Aisyah[1]
[1] *Universitas Ma'arif Lampung, Indonesia*

Corresponding Author rinijuriyah@gmail.com*

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ABSTRACT

The aim of this research is to assess how well class III science students at MI Munada Sungai Nibung learn when using audio-visual based learning resources. The background to this research is the lack of use of technology in the classroom, which contributes to poor learning outcomes for students. This research methodology is quantitative and uses a pretest-posttest control group design, which is a real experimental design. Two groups formed the sample: a control group, which used traditional techniques, and an experimental group, which received treatment using audio-visual media. According to the findings, the average pretest score of the experimental class was 64.2, while the control group was 63.8. After therapy, the experimental class's average posttest score rose to 81.6, compared to 72.4 for the control group. There is a substantial difference in the learning outcomes of students using audio-visual media and traditional techniques, according to the t-test, which revealed a significance value of 0.000 <0.05. This study shows how the use of audio-visual materials can improve students' understanding of the subject matter, increase their motivation to learn, and encourage more interaction between them during class. The success of implementing learning media is also influenced by the availability of infrastructure and facilities, as well as instructors' readiness to use technology, according to this study. The implications of this research emphasize the importance of developing technology-based learning media in improving the quality of learning and student learning outcomes. Therefore, the use of audio-visual media is recommended as an effective strategy for increasing students' conceptual understanding and absorption in science learning.

Keywords: *Learning Media, Audio-Visual, Learning Outcomes, Science Education*

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INTRODUCTION

Teachers play an important role in the educational process by creating resources that utilize technology as a teaching tool. The use of learning technology is one of the pedagogical competencies that teachers must master in managing student learning, in accordance with Article 3 Paragraph 4 of Government Regulation Number 74 of 2008 concerning Teachers (Niarsi, 2020). The use of technology in the classroom can improve learning materials, make delivery of material easier, and foster an interesting and dynamic learning environment. In addition, technology allows educators to provide a wider variety of learning strategies, including presentations, educational videos, simulations, and learning applications that students can access (Ramli, 2019).

Additionally, children can maximize their learning outcomes when the right technology is used in the classroom. Students can access learning resources more easily, flexibly and individually by using various online learning platforms. Therefore, it is very important for educators to continue to hone their skills in utilizing technology as a teaching tool. Apart from increasing students' understanding of the subject matter, this aims to build a learning environment that is friendly and supportive and in line with contemporary technological advances.

To create more effective learning designs that link what students will learn with how they are assessed, learning outcomes are critical. Learning outcomes serve as the basis for assessing and reporting student academic success. Learning outcomes are evaluated at the end of the process to show what students have learned and developed (Motoh et al., 2022). Learning outcomes are certain cognitive, emotional and psychomotor skills or talents that students acquire or master as a result of their involvement in the teaching and learning process (M. A. Andryannisa et al., 2023).

The use of media in the classroom can stimulate students' interest and enthusiasm for learning. Media can also reduce or eliminate verbalism, encourage orderly and methodical reasoning, and help students improve their understanding and values. Apart from that, the use of learning media is very important because it can save time. Thus, media-based learning can make learning easier, especially in terms of teaching new and unfamiliar concepts to students (Supriyono, 2020).

Anything that can convey messages through various channels, such as arousing students' emotions, thoughts and will to support the development of an efficient learning process and providing them with new information to help them achieve learning goals, is considered learning media (Daniyati, 2023). According to Fitria (2018), there are three categories of learning media: auditory, visual, and audiovisual. Students' ideas, emotions, attention, and capacity to acquire instructional material can all be stimulated by audio media, namely media that conveys messages in an auditory format (only heard). For example: MP3, computer audio, vinyl records, radio, tape recorder, telephone, language laboratory, and magnetic tape recorder (Hamdani, 2018). Media that can only be perceived through the sense of hearing is called visual media. Diagrams, graphs, film strips, slides, globes, maps, digital and printed graphics, photography, graphic design, video and animation are some examples (Hamdani, 2018). Therefore, media that contains sound and visual components is called audio-visual media. Television, films, sound slides, VCDs, interactive whiteboards, computers, the internet, and digital signage are some examples (Djamarah & Zain, 2006).

Initial observations at MI Munada Sungai Nibung and the results of interviews with teachers and students at MI Munada Sungai Nibung became the basis for this research. Based on observations, the school has many advantages. For example, the school has laptops, LCD projectors, Wi-Fi and other learning devices, and the teachers are technologically literate. However, so far, the packaging of learning materials is still conventional. Based on the results of interviews with teachers at MI Munada Sungai Nibung, "Teachers have not used learning media; they use conventional media such as blackboards, textbooks, student worksheets, and simple teaching aids. This is because teachers lack technological knowledge, which hinders their creativity. If they want to create traditional learning media, they have difficulty finding the necessary equipment and materials, and even if they want to do it, they don't have the time to do it, so they only use downloaded books and media, which are simple and considered adequate for use as teaching materials." Because they are less able to understand information from

the teacher, students become uninterested in learning models that are too repetitive, which has a negative impact on decreasing student learning outcomes. In addition, MI Munada Sungai Nibung students' responses revealed that "teachers rarely use additional media in any learning process in class; usually only theme books and bupena are used." To our knowledge, no instructor has ever used a projector to display audio-visual material in class. To improve the quality of learning and make content easier and more enjoyable for students, MI Munada Sungai Nibung teachers started using technology-based media, such as audio-visual media.

This is in accordance with the objectives of class III science learning at MI Munada Sungai Nibung. Based on preliminary data, of the 26 class III students at MI Munada Sungai Nibung, 14 students (54%) have achieved complete learning outcomes, while the other 12 students (46%) have not achieved learning outcomes according to the KKM (70) set by the school. Seeing the potential and problems faced by teachers and students, as well as the results of initial observations carried out at schools, new interactive teaching materials are needed. This teaching material is easy to make, cheap and time-saving, but is able to provide efficient and effective learning outcomes in overcoming these problems. Apart from the various problems that arise at the research location, researchers are interested in including audiovisual-based teaching materials because the use of these learning resources is supported by the availability of adequate learning devices in schools.

METHOD

This research uses quantitative methodology and experimental design, specifically pretest-posttest control group design, namely a true experimental design. This strategy is in accordance with the ideas put forward by Arikunto (2019), who stated that quantitative research places great emphasis on numerical data collected methodically and studied using statistical methods. Sampling was carried out using purposive sampling, which was divided into two groups, namely the experimental class which consisted of ten students and the control class which also consisted of ten students. While the control group used traditional teaching techniques without the use of additional media, the experimental group received teaching through the use of audio-visual materials. Pretest and posttest are used to test how much influence different teaching strategies have on student learning outcomes (Sugiyono, 2019). The following is a description of the experimental design of this research:

R_{AND} : X O_1
R_K : I_2

Figure 1. Research Design

To ensure the validity and credibility of research findings, data was collected through observation, tests, interviews and documentation. Pre-test and post-test are used to measure student learning achievement, and observations are used to see how learning is taught in class. To collect supporting data regarding the effectiveness of the learning resources used, interviews were conducted with school principals, educators and students. By documenting important information such as academic grades and school profiles, documentation improves data collection (Arikunto, 2019). To ensure the significance of variations in learning outcomes between the experimental and control groups, the collected data was examined using SPSS software using normality,

homogeneity and t-test (Sugiyono, 2019). Thus, a t-test using the following formula is used:

$$= \frac{Md}{\sqrt{\frac{\sum_{(xd)}{}^{2}}{N(N-1)}}}$$

RESULTS AND DISCUSSION

Education is very important in creating a knowledgeable and capable generation, especially at the elementary school level which aims to maximize the potential of each student. One of the courses that helps students develop their critical and logical thinking skills is the Natural Sciences (IPA) course. However, science learning at the Madrasah Ibtidaiyah (MI) level often encounters obstacles because traditional learning techniques are less successful in communicating abstract ideas. Along with advances in technology, audio-visual teaching materials have become a creative alternative that can help present information in a more interesting and dynamic way by utilizing aural and visual processes. This learning resource has been applied to class III science learning at Madrasah Ibtidaiyah Munada Sungai Nibung for the 2024–2025 academic year. An overview of the impact of using audio-visual teaching materials on improving student learning outcomes is anticipated from this research, which seeks to investigate the efficacy of using audio-visual teaching materials on learning outcomes.

Application of Audio Visual Learning Media in Science Subjects

Students' learning motivation increases when audio-visual materials are used in science classes, according to teacher and student observations and interviews. After viewing the instructional videos, teachers reported that students were more engaged and enthusiastic during class discussions. Supriyono's (2020) statement that audio-visual materials can stimulate students' curiosity and facilitate their understanding of the subjects being taught gives credence to this. Students also acknowledged that, in contrast to the traditional lecture format, information conveyed through audio-visual media was easier to understand. Audio-visual media contributes to increasing student participation during learning in addition to increasing learning motivation. Based on observations, it was found that students responded to information and asked more questions. This supports the findings of Daniyati (2023), who claims that because students can see real examples and direct demonstrations of the topics being taught, the use of audio-visual media motivates them to become more active learners.

Based on the results of an interview with the MI Munada Sungai Nibung teacher, he revealed that the application of audio-visual learning media in this school aims to help students more easily understand concepts in science subjects, especially in the material "Movement of Objects". According to him, audio-visual media provides a clearer picture of how various types of object movement occur in everyday life, such as straight motion, circular motion and rolling motion. The Principal also added that with the use of this media, the learning process becomes more effective and enjoyable for students.

Figure 2. The teacher briefly explains the material

In an interview with the Class III Teacher at MI Munada Sungai Nibung, he stated that the use of audio-visual media in learning the material "Object Movement" really helps students understand the concepts presented. He explained that through learning videos that display illustrations of real object movements and animated simulations, students become more interested and motivated to learn. The teacher also mentioned that this method makes the process of delivering material easier and increases students' absorption of the concepts being taught.

Figure 3. Students pay attention to material in Audio Visual Media

The success of learning using audio-visual media is supported by several factors, including the teacher's readiness to use technology, the availability of facilities such as projectors and computers, as well as positive responses from students towards this

method. As expressed by Andryannisa et al., (2023), environmental factors and the readiness of teaching staff in managing learning media greatly determine its effectiveness in improving learning outcomes.

Although audio-visual media has proven effective, this research also found several challenges in its implementation. Several teachers revealed that they still face obstacles in creating and using technology-based learning media, especially in terms of preparing interesting and interactive material. This is in accordance with the findings of Ramli (2019), who stated that teachers' lack of skills in using technology can be an obstacle in implementing digital learning media. Apart from challenges for teachers, several technical obstacles were also found in the application of audio-visual media. Some students have difficulty understanding some parts of learning videos that are too fast or have unfamiliar language. In line with Nurrita's (2019) research, the use of audio-visual media must be adjusted to the student's level of understanding to be effective. Therefore, teachers need to ensure that the material used is easy for students to understand.

This study has a significant impact on the field of education, especially in the creation of technology-based educational materials. In an effort to improve student learning outcomes, the findings of this study provide credence to the policy of using audio-visual materials in the classroom. According to Motoh et al. (2022), educational technology can be used to increase the effectiveness of the learning process and improve students' educational experience.

According to research conducted by Nasution et al., (2021), visual and audio-based learning media are able to clarify concepts that are difficult to understand through conventional lecture methods. This is because the combination of visual and auditory elements in learning can stimulate more senses, so that the information students receive is more embedded in long-term memory. In the context of science learning, audio-visual media is able to present real illustrations of natural phenomena, such as the water cycle, food chains and energy concepts, making it easier for students to understand abstract material.

Another advantage of using audio-visual media is its ability to increase student involvement in the learning process. A study conducted by Prasetyo et al., (2020) shows that students are more motivated and active in discussions when they see interesting videos or animations. This is in line with the findings of this research, where students in the experimental class showed greater interest in participating in learning activities compared to students in the control class. When asked through interviews, many students stated that they felt more interested and did not get bored quickly when learning using audio-visual media compared to just reading books or listening to teacher explanations.

Apart from that, research conducted by Nugroho et al., (2021) shows that the use of audio-visual media can develop students' critical and analytical thinking skills. When students are exposed to a video of a science experiment that shows a scientific phenomenon, they are more motivated to analyze the causes and consequences of the event. This is different from the lecture method which tends to provide information directly without giving students the opportunity to explore concepts on their own. In this study, it was found that students in the experimental class asked more critical questions after watching video-based learning materials, indicating an improvement in their conceptual understanding and analytical thinking skills.

The application of audio-visual media also contributes to increasing time efficiency in learning. According to research conducted by Sari & Hidayat (2023),

teachers who use audio-visual media can convey more material in a shorter time compared to conventional methods. This is because visualization of complex concepts can be presented in the form of images or animations that are easier to understand in a shorter time. In this study, teachers who taught in experimental classes reported that they could complete more topics in one learning session compared to control classes that used conventional methods.

Finally, the challenges in implementing audio-visual media must also be considered so that its use can run optimally. Research from Rahmawati et al., (2020) shows that several factors such as teachers' lack of skills in operating technology, limited infrastructure, and lack of availability of quality content can hinder the effectiveness of this learning media. In the context of MI Munada Sungai Nibung, even though the school has adequate technological facilities, interviews with teachers show that most of them still face obstacles in designing effective audio-visual based materials. Therefore, additional training is needed for teaching staff so that they are better prepared to utilize learning technology optimally.

Based on the findings of this research, it is recommended that schools and teachers be more active in developing and implementing audio-visual learning media. Training for teachers in the use of learning technology needs to be improved, and schools must ensure the availability of adequate facilities to support this process. As stated by Sugiyono (2015), infrastructure and human resource readiness are key factors in the successful implementation of technology-based learning media.

Science Learning Outcomes

The grade level that shows how well students have understood the subject matter is used as a criterion for measuring student learning outcomes. Evaluation is carried out to measure student learning outcomes. To decide whether learning content needs to be repeated or can be continued, evaluation functions to ensure student learning outcomes (Arief, 2012). After measurement and evaluation, measurement findings are expressed as values that meet commonly used criteria levels, specifically as follows:

Very good : 91-100
Good : 80-90
Enough : 75-79
Not enough : 64-74
failed : ≥64 (Telaumbanua & Harefa, 2024).

Students' ability to respond to teacher questions is the basis of learning achievement scores. Therefore, each student's learning outcomes will vary depending on the level of mastery of the material they are studying. From the learning results above, it can be seen that the KKM (Minimum Completeness Criteria) for class III Science at MI Munada Sungai Nibung is 70, which means that good mastery of the material must be based on an understanding of values. Learning begins with a pre-test, followed by providing treatment and a post-test using visual media in learning. The results of the science pre-test and post-test are as follows.

1. Experimental and Control Class Pre-test Results

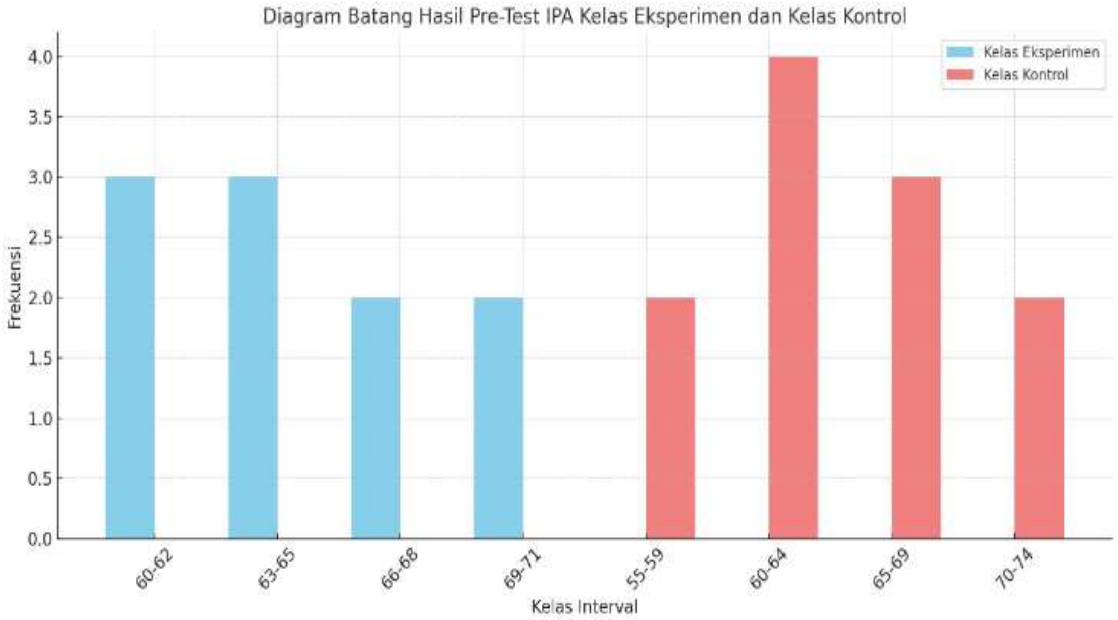

Figure 4. Graph of Science Pre Test Results for Experimental and Control Classes

2. Post-test results for Experimental and Control classes

Figure 5. Graph of Science Post Test Results for Experimental and Experimental Classes

3. Comparison Chart

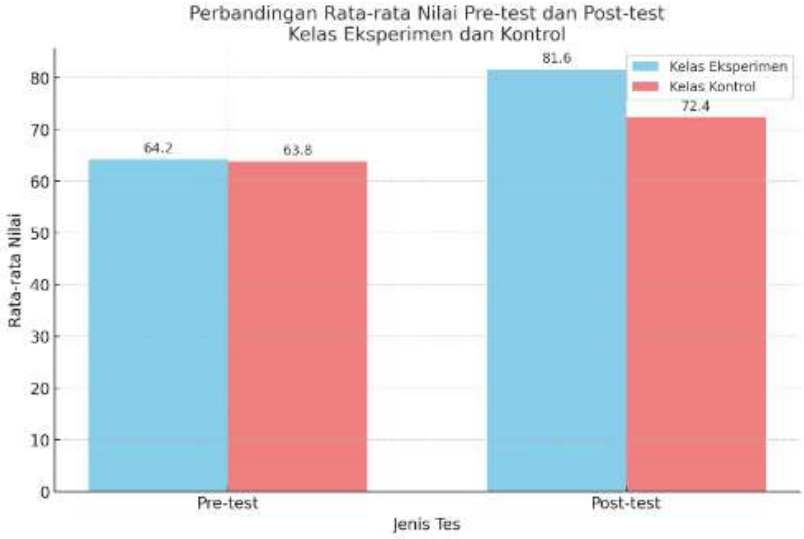

Figure 6. Comparison of Pre-test Post-test for Experimental and Control classes

The significant increase in learning outcomes in the experimental class shows the superiority of audio-visual media compared to traditional learning techniques. According to Fitria's research (2018), audio-visual teaching materials can improve students' conceptual understanding and memory of the material. Apart from that, by providing interesting visual and auditory stimuli, this media encourages students to be more active in learning (Nurrita, 2019).

CONCLUSION

Based on the results of the study, it can be concluded that the use of audio-visual learning media significantly improves student learning outcomes compared to conventional methods. This improvement is demonstrated by significant differences in posttest scores between the experimental and control sets. Apart from that, audio-visual media also increases learning motivation, student interaction and learning skills. For further investigations, the scope of the investigation is expanded to involve more samples and different subjects. In addition, further investigation can determine the influence of various types of technology-based learning media on students' cognitive and affective aspects.

REFERENCES

Andryannisa, M., Suparman, A., & Wahyuni, S. (2023). Analysis of Factors that Influence Student Learning Outcomes in Elementary Schools. *Indonesian Journal of Basic Education*, *5*(2), 112–125.

Arief, A. (2012). *Introduction to the Science and Methodology of Islamic Education*. Ciputat Press.

Arikunto, S. (2019).*Research Procedures: A Practical Approach*. Rineka Cipta.

Daniyati, A. (2023). Basic Concepts of Learning Media. *Journal of Student Research (JSR)*, *1*(1), 285–296.

Djamarah, S. B., & Zain, A. (2006). *Teaching Learning Strategies*. Rineka Cipta.

Djamarah, S. B., & Zain, A. (2016). *Teaching Learning Strategies*. Rineka Cipta.

Fitria, A. (2018). Use of Audio Visual Media in Early Childhood Learning. *Early*

Horizons, *5*(2), 59–70.
Hamdani. (2018). *Teaching Learning Strategies*. CV. Faithful Library.
Motoh, T. C., Hamna, & Kristina. (2022). Using Video Tutorials to Improve Social Studies Learning Outcomes for Class VII Students at SMP Negeri 3 Tolitoli. *Madako Journal of Educational Technology*, *1*(1), 1–14.
Nasution, D., Wijaya, R., & Purnomo, A. (2021). Application of Visual Media in Science Learning to Improve Students' Understanding of Concepts. *Journal of Science and Education*, *13*(2), 67–80.
Nugroho, T., Lestari, D., & Saputra, J. (2021). The Impact of Audio-Visual Media on Students' Critical Thinking Abilities. *Journal of Education and Technology*, *10*(2), 45–60.
Nurrita, T. (2019). Development of Learning Media to Improve Student Learning Outcomes. *Myskat*, *3*(1), 186–190.
Prasetyo, W., Rahmadani, S., & Nugrahani, I. (2020). Effectiveness of Using Audio-Visual Media in Increasing Student Engagement in Science Learning. *Journal of Science Education*, *11*(3), 98–112.
Rahmawati, L., Santoso, P., & Dewi, A. (2020). Barriers to Implementing Audio-Visual Media in Elementary Schools: Case Studies in Several Schools in Indonesia. *Journal of Educational Technology*, *6*(2), 76–90.
Ramli, M. (2019). Learning Media in the Perspective of Al-Quran and al-Hadith Ittihad. *Kopertais Journal Region XI Kalimanta*, *13*(23), 140–153.
Sari, R., & Hidayat, M. (2023). Learning Efficiency Using Audio-Visual Media in Basic Education. *Journal of Technology and Education*, *12*(1), 44–58.
Sugiyono. (2015). *Qualitative Research Methodology.* Alphabet.
Sugiyono. (2019). *Educational Research Methods: Quantitative, Qualitative, and R&D Approaches*. Alphabet.
Supriyono. (2020). The Importance of Learning Media to Increase Elementary School Students' Interest in Learning. *Edustream: Journal of Elementary Education*, *2*(1), 40–55.
Telaumbanua, E. D. P., & Harefa, A. R. (2024). The Influence of Learning Style on Student Learning Outcomes. *Journal of Education Research*, *5*(1), 690–702.
Wulandari, A., & Setiawan, D. (2022). Retention of Student Learning by Using Audio-Visual Media in Science Education. *Journal of Education and Technology*, *11*(2), 55–70.