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APPLICATION OF ANIMATION VIDEO LEARNING MEDIA IN SCIENCE LEARNING ON THE WATER CYCLE MATERIAL FOR GRADE III AT SD N 24 LUBUKLINGGAU

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Abstract: This study aims to determine the effect of implementing animated video learning media on student learning outcomes in the subject of Natural and Social Sciences (IPAS), specifically the water cycle material in Grade III at SD Negeri Biaro Lama. The background of this research lies in the low learning outcomes of students in IPAS, caused by the limited use of engaging and appropriate instructional media suited to elementary students' characteristics. This study uses a quantitative approach with a quasi-experimental method, employing a One Group Pre-test and Post-test Design. The research subjects were all 20 students in Grade III. Data collection techniques involved multiple-choice tests consisting of 13 validated questions. The pre-test results showed that none of the students achieved the Minimum Mastery Criteria (KKM) of 70, with an average score of only 50.40. After the treatment using animated video learning media, post-test results showed a significant increase, with an average score of 85.40 and 18 students (90%) achieving mastery. Based on the hypothesis testing using a Z-test, the obtained Zcount was 6.60, greater than the Ztable of 1.64. Therefore, the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted, indicating that the use of animated video learning media significantly improves student learning outcomes.
In conclusion, animated video learning media is proven to be an effective tool in enhancing student engagement and understanding of scientific concepts in IPAS.
This research suggests that future studies explore the application of animated media in other subject areas and across different grade levels to strengthen the generalizability of the findings.
Keywords: learning media, animated video, learning outcomes, IPAS, water cycle.

INTRODUCTION

The learning process is a series of abstract activities that occur mentally and cannot be directly observed. It can only be identified through changes in a person's behavior after the learning takes place (Arsa, 2015). These behavioral changes may include aspects of knowledge, cognition, affect, and psychomotor domains. Efforts to improve the quality of education are the responsibility of all stakeholders, particularly teachers. Teachers serve as professional educators who are responsible for teaching, educating, and guiding students to become individuals with Pancasila values (Baharudin et al., 2007). The future quality of a nation is strongly influenced by the quality of its teachers today. In the learning process, teachers play an essential role—not only as providers of information, but also as role models, motivators, and facilitators of students' potential and creativity. Slameto (2010) states that learning is a structured system designed to support students' internal learning processes through a series of planned events. Therefore, effective learning must be adjusted to student characteristics and should not be monotonous, so students remain engaged and interested.In the context of the new Merdeka Curriculum, which has been implemented in Grades I and IV of primary schools, Natural Sciences (IPA) and Social Sciences (IPS) are integrated into a single subject called IPAS (Ilmu Pengetahuan Alam dan Sosial). IPAS plays a vital role in shaping students' comprehensive knowledge competencies. According to Saputra et al. (2021), knowledge competence includes the ability to recall, understand, apply, analyze, synthesize, and evaluate information. However, in practice, many students experience difficulties in understanding IPAS materials. Observations at SD Negeri Biaro Lama indicate that a significant number of Grade III students have not yet achieved the Minimum Mastery Criteria (KKM), especially in the water cycle topic. Other problems include disruptive classroom behavior, such as excessive talking, playfulness during lessons, frequent complaints, and cheating. These issues indicate that the current teaching strategies and media are not effectively fostering student engagement or comprehension. Previous studies have shown that engaging learning media such as animated videos can improve students' understanding and motivation (Andini & Ratmanida, 2019). Animated videos are effective for simplifying complex concepts, enhancing memory retention, and promoting active, interactive learning. However, there is still limited research investigating the effectiveness of animated video media specifically in teaching IPAS at the primary school level, particularly on the topic of the water cycle. This forms the research gap that this study aims to address.

METODOLOGI

Research Design

This study employed a quasi-experimental method. According to Sugiyono (2017), the experimental method is used to determine the effect of a specific treatment under controlled conditions. The type of experiment used in this study is a Pre-Experimental Design, with the design model being One Group Pre-test and Post-test. The experimental design is presented in the following table:

Pre-test (O1)	Treatment (X)	Post-test (O2)
✓	✓	✓

Explanation:

O1: Pre-test (conducted before the treatment)

O2: Post-test (conducted after the treatment)

X: Treatment (application of animated video learning media)

Research Subject

The study was conducted at SD Negeri Biaro Lama, located at 82G7+QC4, Biaro Lama, Karang Dapo District, Musi Rawas Regency, South Sumatera. The research was carried out during the odd semester of the 2025 academic year. The population in this study consisted of all third-grade students of SD Negeri Biaro Lama, totaling 20 students (9 boys and 11 girls). The sampling technique used was saturated sampling, in which the entire population is used as the sample (Sugiyono, 2017).

Data Collecting

The data collection technique used in this research was a test method. In quantitative research, data collection was carried out through a pre-test and post-test. The pre-test was used to determine the students' initial condition before treatment, while the post-test was used to measure the learning outcomes after using animated video learning media. The test consisted of multiple-choice questions and was administered before (pre-test) and after (post-test) the learning session.

Data Analysis

The instrument used in this study was a set of 20 multiple-choice test questions. The analysis included testing for validity, reliability, discriminating power, difficulty index, and hypothesis testing.

1. **Validity** was tested using the point-biserial correlation formula. Based on the analysis, 13 items were found to be valid, while 7 items were invalid.
2. **Reliability** was tested using the KR-20 formula. The instrument was considered reliable with a high reliability coefficient.
3. **Discriminating Power** measured how well the test distinguished between high- and low-performing students. Most items fell into the good or excellent categories.
4. **Difficulty Index** showed the level of item difficulty, ranging from easy to moderate.
5. **Hypothesis Testing** used the Z-test formula. The null hypothesis (H_0) stated that the average IPAS learning result after treatment was less than 70, while the alternative hypothesis (H_1) stated that it was equal to or more than 70. If Z_calculated > Z_table, then H_0 is rejected, and H_1 is accepted.

RESEARCH RESULT

Finding

This research was conducted at SD Negeri Biaro Lama, located in Karang Dapo, Musi Rawas Regency, South Sumatra. The study began with an instrument trial in class III, involving 20 students. The test consisted of 20 multiple-choice questions, of which 13 were declared valid and 7 invalid. The researcher conducted four meetings: one for the pre-test, two for the implementation of animated video learning media, and one for the post-test.

The pre-test aimed to assess students' initial ability before the learning process. It consisted of 13 multiple-choice questions. The pre-test results are summarized in the following table:

Table 4.1

Pre-Test Data Recapitulation

No	Category	Description
1	Minimum Score	31
2	Maximum Score	69

3	Average Score	50.40
4	Standard Deviation	13.57
5	Students Achieving Mastery	0 (0%)
6	Students Not Achieving Mastery	20 (100%)

These results show that no students achieved the minimum passing grade (70). The highest score was 69, and the lowest was 31. The average score was 50.40. It can be concluded that students' initial knowledge before the use of animated video learning media was below mastery level.

In the post-test phase, students answered the same number of questions (13). The post-test results are shown below:

Table 4.2

Post-Test Data Recapitulation

No	Category	Description
1	Minimum Score	62
2	Maximum Score	100
3	Average Score	85.40
4	Standard Deviation	10.43
5	Students Achieving Mastery	18 (90%)
6	Students Not Achieving Mastery	2 (10%)

This data shows that 18 out of 20 students (90%) scored above 70, while only 2 students (10%) did not achieve mastery. The average score increased to 85.40. It can be concluded that students' understanding improved after the use of animated video media.

Data Analysis

The hypothesis tested whether the use of animated video media significantly improved students' IPAS learning outcomes. The hypothesis was tested using a one-tailed Z-test due to the saturated sample.

Normality Test A Chi-Square goodness-of-fit test was used for the normality test at a significance level of $\alpha = 0.05$.

Table 4.3

Normality Test Results

Test Type	X^2 (Chi-Square)	df	X^2 Table	Conclusion
Post-test	2.2364	4	9.48	Normal
Pre-test	6.0419	4	9.48	Normal

Both pre-test and post-test data are normally distributed.

Hypothesis Test

Table 4.4

Hypothesis Test Results

Test	Z-calculated	Z-table	Conclusion
Post-test	6.60	1.64	Z > Z-table → Ha accepted

Since Z-calculated (6.60) > Z-table (1.64), the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted. This means the use of animated video media significantly improved students' learning outcomes in IPAS.

Discussion

The first meeting was used to validate the test instruments with 20 multiple-choice questions in class IV. Based on the validation, 13 questions were valid and used in class III. The pre-test showed that none of the students reached the passing grade. The average score was 50.40. This indicates that students had low prior knowledge due to unfamiliarity with the material and lack of previous exposure to innovative media. In the first treatment, the classroom was initially not conducive. The teacher grouped students and explained how to use the animated video. Learning steps included orientation (raising student awareness and problem formulation), hypothesis formulation, data collection, verification, and generalization. In the following sessions, students learned in groups, received presentations, engaged in team discussions, and participated in a tournament-based review activity. These methods encouraged student engagement. In the final treatment, students were more active and comfortable using the media. They asked questions and responded enthusiastically. After the final post-test, student scores improved significantly. The teacher gave motivational feedback, encouraging students to stay active in class. Based on the research results, animated

video media effectively reduced student boredom and enhanced active participation, making it a strong alternative for improving classroom learning.

CONCLUSION

Based on the research findings and discussion, it can be concluded that the implementation of animated video learning media has a significant impact on improving student learning outcomes in the IPAS subject for Grade III at SD Negeri Biaro Lama in the 2025 academic year. This is evidenced by the pre-test results, which showed that none of the students achieved the minimum mastery criteria, with an average score of 50.40. However, after applying the animated video media, the post-test average increased to 85.40, with 18 out of 20 students achieving mastery. Further statistical testing using the Z-test showed that the calculated Z-value is greater than the table Z-value ($Z_{count} \geq Z_{table} = 6.60 \geq 1.64$), thus H_0 is rejected and H_a is accepted. This indicates a significant improvement in learning outcomes after the use of animated video learning media. The strengths of this media include increasing students' motivation and understanding through visual and engaging content. However, its weaknesses involve technological limitations and the readiness of teachers to effectively manage and utilize the media.

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