THE USE OF AUDIO-VISUAL MEDIA ON LEARNING OUTCOMES OF MAN STUDENTS ON VIRUS MATERIAL

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ABSTRACT

The learning process is a method of educating students using educational principles and learning theories, which are key determinants of educational success. Learning requires interaction between students, teachers, and learning resources in an educational environment, necessitating planning, implementation, assessment, and supervision. Various methods can be employed by teachers to ensure engaging learning experiences, allowing students to acquire information from diverse sources beyond textbooks. One such method is through audiovisual media. This research aims to analyze the learning outcomes of students at MAN (Islamic Senior High School) on the topic of viruses through the application of audiovisual media. The research method used is quasi-experimental research with The One Group Pretest-Posttest Design. The study was conducted in the first semester of 2023. Data collection involved written tests administered as pre-tests to assess students' initial abilities and post-tests to evaluate their final abilities. Pre-test and post-test scores were converted into N-gain values. The data obtained shows that the average pre-test score of 36.63 from 20 students did not meet the Minimum Mastery Criteria. However, after participating in learning sessions using audiovisual media on the topic of viruses, there was an improvement, with an average post-test score of 83.63. It can be concluded that audiovisual media can stimulate interest and improve student learning outcomes. Audiovisual media is inherently engaging and motivates students to explore more of the material presented through audiovisual means, thereby developing listening skills and evaluating what has been observed.

Keywords**:** Audio-Visual Media, Learning Outcomes, Virus Material

ABSTRACT

Proses pembelajaran adalah suatu proses membelajarkan siswa menggunakan asas pendidikan maupun teori belajar yang merupakan penentu utama keberhasilan pendidikan. Pembelajaran memerlukan interaksi peserta didik dengan guru dan sumber belajar pada suatu lingkungan belajar sehingga perlu direncanakan, dilaksanakan, dinilai dan diawasi. Berbagai cara dapat digunakan guru agar pembelajaran dapat berlangsung dengan menarik, sehingga peserta didik dapat memperoleh informasi dari berbagai sumber selain buku paket. Salah satunya adalah melalui sumber media audio visual. Penelitian ini bertujuan untuk menganalisis hasil belajar siswa MAN pada materi virus melalui penerapan media audio visual. Jenis penelitian yang digunakan adalah penelitian quasi experiment. Design penelitian yang digunakan pada penelitian ini adalah The One Group Pretest-Postest Design. Waktu penelitian dilaksanakan pada semester ganjil tahun 2023. Pengumpulan data dilakukan dengan tes tertulis yang dilakukan untuk memperoleh data hasil belajar siswa menggunakan pre-test untuk melihat kemampuan awal peserta didik dan post-test untuk melihat kemampuan akhir peserta didik. Data hasil test pre-test dan post-test akan di konversi menjadi nilai N-gain. Diperoleh data bahwa rata-rata nilai pre-test 36.63 dari 20 peserta didik belum lulus untuk mencapai KKM, sedangkan setelah mengikuti pembelajaran menggunakan media audio visual pada materi virus terjadi peningkatan dengan diperoleh nilai rata-rata post-test 83,63. Dapat disimpukan bahwa media audio visual dapat

menumbuhkan minat dan memperbaiki hasil belajar peserta didik. Karena media audio visual memiliki sifat yang menarik dan memotivasi siswa untuk mempelajari lebih banyak materi yang disajikan di dalam audio visual dan dapat digunakan untuk mengembangkan keterampilan mendengar dan mengevaluasi apa telah di saksikan.

Keywords**:** *Media Audio-Visual, Hasil Belajar, Materi Virus*

A. INTRODUCTION

The learning process is a process of educating students using educational principles and learning theories, which are crucial determinants of educational success. Learning requires interaction between students and teachers, as well as learning resources, within a learning environment, thus necessitating planning, implementation, assessment, and monitoring. A good learning process can be achieved when both students and teachers actively participate in it. In learning, there are many differences; some students grasp the material easily, while others may take longer. These differences require teachers to plan learning materials, delivery methods, teaching strategies, and learning resources in an environment that suits the students' needs.

Based on the initial observation conducted by the researcher in class X-1 at MAN 1 Sabang during a biology lesson on the topic of viruses, the teacher began the lesson with the usual routine of guiding students to read a prayer. After that, the teacher provided some reinforcement and proceeded to use the thematic book or textbook for the lesson. Subsequently, the teacher instructed students to take notes from the printed material and gave them practice questions to work on. The researcher noted a lack of response from students during the lesson. Some students seated at the back were not actively participating and showed little response to the teacher. Only a few students seemed enthusiastic in responding to the teacher during the lesson. Students appeared to lack enthusiasm in taking notes and reading the book. Some students did not complete their tasks, citing reasons such as lack of writing tools and various other reasons. Based on your description, it seems there are challenges with student engagement and participation during the biology lessons on viruses.

The learning outcomes reflect the abilities and qualities of students as a result of their learning and teaching activities. If students lack interest in learning, their learning outcomes may not be optimal. One solution to enhance both interest and learning outcomes, particularly in biology education, is through implementing appropriate learning strategies or models that align with the subject matter.

"The learning models aim to facilitate the learning process and support the achievement of learning objectives. There are many learning models and media that can be used to achieve these goals. Teachers have various ways to make learning engaging so that students can learn from sources other than textbooks, one of which is through the use of audiovisual media. This research aims to analyze students' learning outcomes at MAN (Madrasah Aliyah Negeri) on the topic of viruses through the application of audiovisual media."

B. RESEARCH METHOD

The type of research used is quasi-experimental research. Quasi-experimental research is a type of study that offers a practical approach to investigate cause-and-effect relationships. This type of research can be used to determine the effect of a treatment on research subjects. The

research design used in this study is The One Group Pretest-Posttest Design. Prior to administering the treatment, a single assessment in the form of a pre-test is conducted. After administering the treatment to the subjects, a post-test is conducted to determine the difference in learning outcomes before and after the treatment. The research was conducted in the first semester of 2023.

The population in this study consists of all 10th-grade students totaling 4 classes for the academic year 2023/2024 at MAN 1 SABANG. The sample in this study is Class X-1, which consists of 20 students. The sampling technique used in this research is purposive sampling, which is a sampling technique based on specific considerations. Data collection is conducted through written tests to obtain students' learning outcomes data using a pre-test to assess students' initial abilities and a post-test to assess students' final abilities. The data from the pre-test and post-test scores will be converted into N-gain values. The N-gain value can be obtained using the formula:

$$N\ gain = \frac{Post - test\ score - Pre - test\ score}{Maximum\ possible\ score - Pre - test\ score}$$

Where:
Post-test score is the score obtained after the treatment or learning.
Pre-test score is the score obtained before the treatment or learning.
Maximum possible score is the highest score that could be achieved in the test or evaluation.

Table 1 Normalized Gain Criteria

N-gain Score	**Category**
N-gain > 0.70	High
0.30 ≤ N-gain ≤ 0.70	Medium
N- gain < 0.30	Low

Next, the data is analyzed using the t-test formula to determine whether there is an improvement in student learning outcomes with the assistance of SPSS 16.0 software.
The decision-making basis in the t-test can be approached through probability, with a significance level of α=0.05. The decision-making process involves examining the probability value (p-value), with the following guidelines:

a. If the score *sig.* > 0.05 therefor H_0 accepted.
b. If the score *sig.* < 0.05 therefor H_0 rejected.

C. RESULT AND DISCUSSION

Pre-tests were administered by the researcher during the first and second meetings before implementing audiovisual media in the learning process, while post-tests were given during the first and second meetings after the completion of the learning sessions. Based on data analysis in this study, descriptive statistical tests were used, which is a method used to analyze data by describing or depicting the collected data. This test aims to provide an overview or description of the data in variables observed through mean scores and standard deviation. The results of the descriptive statistical test can be seen in Table 2 below:
Table 2 Mean and Standard Deviation Data

	Mean	**Minimum Score**	**Maximum Score**	***Std. Deviation***
Pretest	36,63	20	62,5	11,13
Posttest	83,63	75	95	5,99

Based on the table above, the average pre-test and post-test scores are 36.63 and 83.63 respectively. From these averages, it is evident that there is an increase of 53 points. Additionally, the minimum and maximum values of the post-test are higher compared to the pre-test. The learning outcomes derived from the pre-test and post-test scores given at each session are calculated using the N-Gain formula. The aim is to compare whether there is a significant difference in student learning outcomes on the topic of viruses before and after the use of audiovisual media in the learning process. The data on student learning outcomes can be seen in the table below.

Table 3 Student Learning Outcomes Data for Class X-1 MAN 1 Sabang Using Audiovisual Media

STUDENT CODE	**PRE TEST 1**	**POST TEST 1**	**PRE TEST 2**	**POST TEST 2**	**PRE TEST ($\bar{\chi}$)**	**POST TEST ($\bar{\chi}$)**	**N-GAIN**	**Criteria**
PD1	40	85	35	90	37.5	87.5	0.80	High
PD2	40	85	50	90	45	87.5	0.77	High
PD3	50	90	30	95	40	92.5	0.88	High
PD4	40	80	35	85	37.5	82.5	0.72	High
PD5	30	75	30	80	30	77.5	0.68	Medium
PD6	45	85	45	80	45	82.5	0.68	Medium
PD7	20	70	25	85	22.5	77.5	0.71	High
PD8	25	70	40	80	32.5	75	0.63	Medium
PD9	25	75	25	80	25	77.5	0.70	Medium
PD10	20	85	50	90	35	87.5	0.81	High
PD11	25	80	35	80	30	80	0.71	High
sPD12	20	80	30	75	25	77.5	0.70	Medium
PD13	10	80	35	80	22.5	80	0.74	High
PD14	20	80	20	75	20	77.5	0.72	High
PD15	65	95	60	70	62.5	82.5	0.53	Medium
PD16	35	95	40	85	37.5	90	0.84	High
PD17	30	80	50	95	40	87.5	0.79	High
PD18	45	75	40	90	42.5	82.5	0.70	Medium
PD19	55	90	50	95	52.5	92.5	0.84	High
PD20	50	95	50	95	50	95	0.90	High
MEAN	34.50	82.50	38.75	84.75	36.63	83.63	0.74	High

Table 3 shows the learning outcomes data of students before and after using audiovisual media in the topic of viruses, indicating improvement. This can be seen from the difference between pre-test and post-test scores calculated using the N-Gain formula. Based on the N-Gain formula, it is observed that student learning outcomes using audiovisual media improved with an average score of 0.74, which falls into the high category criteria.

Based on Table 3, the learning outcomes of students who participated in learning using audiovisual media show differences. The average pre-test score for students is 36.63, and the average post-test score is 83.63, with an N-Gain value of 0.74. Considering the Minimum Mastery Criteria for the Biology subject at MAN 1 Sabang is 75, the pre-test results indicate that no students reached the Minimum Mastery Criteria, with the highest pre-test score being 62.5 and the lowest being 20. The post-test results from the first session show that 2 students did not reach the Minimum Mastery Criteria with a score of 70, while in the second session post-test, one student did not reach the Minimum Mastery Criteria.

Based on the overall results of post-tests from sessions 1 and 2, all students achieved the Minimum Mastery Criteria. The highest post-test score was 92.5 and the lowest was 75. This indicates that students improved their abilities in answering post-tests on the topic of viruses. The average pre-test score was 36.63 and the average post-test score was 83.63. A comparison of the average pre-test, post-test, and N-Gain values can be seen in Figure 1 below.

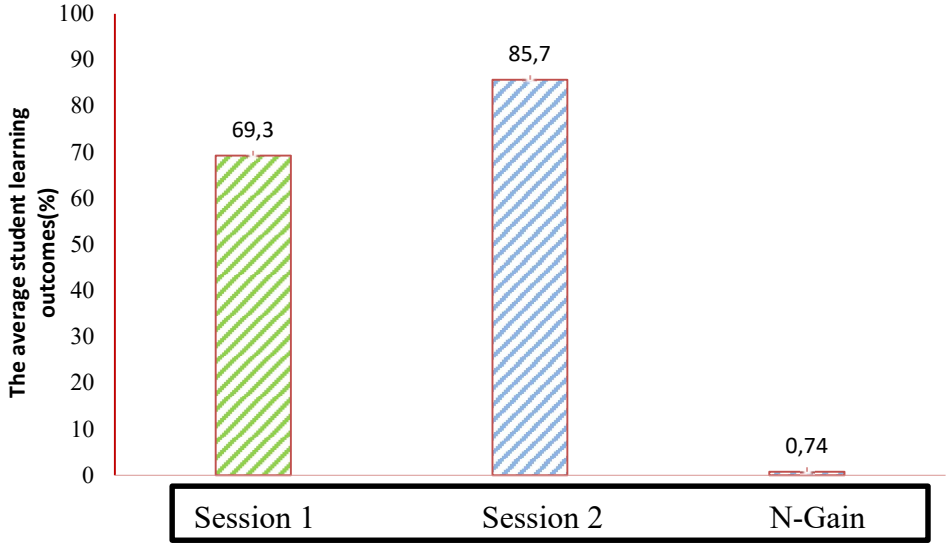

Figure 1 Comparison Graph of Average Percentage of Student Learning Outcomes

In this study, the researcher used a sample of 20 people, so the degrees of freedom (df) are 19, and with a significance level of 5% for a one-tailed test, the critical t-value (t-table) is 2.313. The results of hypothesis testing using SPSS version 16.0 can be seen in the following table:

Table 4 Student Learning Outcome t-test Results

t-value	**Df**	***Sig.***
24,313	19	0,000

Based on the t-test results in the table above, the significance value (sig.) is 0.000, which is smaller than the significance level of 0.05. This indicates that H_0 (null hypothesis) is rejected, or there is a significant difference in the average learning outcomes before and after the treatment using audiovisual media on the topic of viruses.

Based on the analysis of learning outcomes data, there is a comparison between pre-test and post-test scores. The average pre-test score of 36.63 from 20 students indicates that none of the students achieved the Minimum Mastery Criteria of 75. After participating in learning sessions using audiovisual media on the topic of viruses, there was an improvement, with an average post-

test score of 83.63. This demonstrates that the use of audiovisual media significantly impacts student learning outcomes.The student learning outcomes based on N-Gain have an overall average value of 0.74 across 20 students, indicating a high criterion. However, at the individual student level, 6 students achieved N-Gain with a moderate criterion. This discrepancy is attributed to some students' overall lower understanding of the subject matter, lack of diligence in completing assignments, and reluctance to answer test questions correctly.

The difference between pre-test and post-test scores calculated using the N-Gain test yielded an average result of 0.74, which is classified as high criteria. The increase in student learning outcomes on the topic of viruses is attributed to the use of audiovisual media, which enhanced student interest in the learning process and provided them with new insights through audiovisual learning experiences.

Based on the t-test analysis results at a significance level of 0.05 with 19 degrees of freedom, the calculated t-value (t-test statistic) is 24.313, and its significance is 0.000, which is smaller than the significance level of 0.05. Therefore, H_0 (null hypothesis) is rejected, and H_a (alternative hypothesis) is accepted. This statement indicates that there is a significant increase in student learning outcomes with the use of audiovisual media on the topic of viruses.

Based on the research findings, it can be concluded that audiovisual media can cultivate interest and improve student learning outcomes. Audiovisual media is inherently engaging and motivates students to explore more of the material presented through audiovisual means. It can also be used to develop listening skills and evaluate what has been observed.

D. CONCLUSION

Based on the research conducted using the quasi-experimental method, it was found that the average pre-test score of 36.63 from 20 students did not meet the Minimum Mastery Criteria. However, after participating in learning sessions using audiovisual media on the topic of viruses, there was an improvement, with an average post-test score of 83.63. It can be concluded that audiovisual media can foster interest and improve student learning outcomes. Audiovisual media is inherently engaging and motivates students to explore more of the material presented through visuals and audio. It can also be utilized to develop listening skills and evaluate what has been observed.

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