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# EFFECTIVENESS OF AUDIO-VISUAL LEARNING MEDIA ON MADRASAH STUDENTS' UNDERSTANDING OF ISLAMIC CULTURAL HISTORY

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**Abstract:** This study aims to analyze the influence of audio-visual media on students' understanding of Islamic Cultural History learning in madrassas in East Kalimantan Province. The study used an explanatory quantitative approach with a sample of 302 MTs and MA students, taken through proportional random sampling. The instrument is a Likert scale questionnaire that has been tested for validity and reliability. Data were analyzed using descriptive statistics and simple linear regression. The results showed that the use of audio-visual media had a positive and significant effect on student understanding, accounting for 29.3% of the variation in understanding. In conclusion, audio-visual integration strengthens student retention, engagement, and motivation to learn. The implications of this study indicate that integrating audio-visual media into Islamic Cultural History learning can improve students' comprehension, engagement, and learning motivation in madrassas. These findings encourage educators to adopt technology-based instructional strategies that support interactive and student-centered learning environments. In addition, educational institutions and policymakers may use this evidence to strengthen digital learning infrastructure and teacher training programs. The study also implies that multimedia-assisted instruction can serve as an effective pedagogical approach for enhancing learning quality across various educational contexts.

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## INTRODUCTION

Islamic Cultural History (ICH) learning plays an important role in madrasah education because it instills an understanding of the development of Islam, influential figures, and civilizational values relevant to daily life (Alimasdar & Maksum, 2025; Rizki et al., 2025). This lack of understanding has an impact on the low appreciation of Islamic values that are universal and practical. Empirical data show that conventional learning tends to lower students' interest, so a more engaging, context-based approach is needed (Mursidi & Alit, 2025; Wijayanti,

2025). This lack of understanding has an impact on the low appreciation of Islamic values that are universal and practical. Empirical data show that conventional learning tends to lower students' interest, so a more engaging and contextual approach is needed (Özdemir, 2025; Saputri & Sukmawati, 2024; Shi et al., 2024). Thus, this research is relevant to improving the quality of education and cultivating students who are critical, creative, and able to apply historical values in daily life. The application of audiovisual media is one alternative to overcome this problem, as it can integrate visual and auditory experiences, making learning more effective and meaningful.

The main problem in ICH learning arises from the material's narrative, chronological nature, and its focus on past events not directly experienced by students. Materials such as the history of the Prophet's da'wah, the development of dynasties, and the contributions of Islamic civilization are often considered abstract and boring if delivered only through lectures (Fatmawati et al., 2025; Islam et al., 2025). As a result, students tend to be passive, lack focus, and memorize without understanding the material's context and content in its entirety (Ardiansyah et al., 2024; Saha et al., 2024; Sengul, 2024). This has implications for low learning outcomes and limited student understanding. Previous research also revealed that the use of conventional methods without varied learning media is less effective at optimally improving student understanding. Therefore, this research is important for identifying learning strategies that can increase students' motivation, interest, and cognitive understanding through media innovation, while contributing to the improvement of the quality of KI-based education in madrasas.

The field phenomenon shows that most madrasah teachers still rely on the lecture method in teaching ICH (Albanna, 2024; Lianawati, 2024). As a result, students have difficulty understanding the historical flow and contributions of important figures. Observations and interviews with teachers and students show that historical material presented without visualization makes learning feel monotonous and less interesting. Students often struggle to relate historical events to the context of modern life, leading to a shallow understanding (Bergman & Hessel, 2024; Hong et al., 2025; Kia & Majesty, 2025). This condition creates a gap between the expected learning objectives and the actual learning outcomes. In addition, teachers' limited skills in using digital technology hinder the optimization of learning media (Chang & Liu, 2025; Fitroh, 2025; Phulpoto et al., 2024). This phenomenon underscores the need for research on the effectiveness of audiovisual media in addressing students' cognitive difficulties and increasing their interaction and engagement in ICH learning.

Various previous studies have shown that the use of audiovisual media can improve the quality of ICH learning Studies in madrassas show that audiovisual media can significantly improve students' learning outcomes and understanding compared to conventional methods (Majeed & Ahmad, 2025; Pasaribu et al., 2025). Students become more active, enthusiastic, and able to reinterpret the material learned. Research in madrasas also found that the use of audiovisual media increases students' interest in learning and understanding of ICH material

(Madani et al., 2026; Musayadah & Adawiyah, 2025). Historical material that was previously difficult to understand became easier to understand through the visualization of engaging events and narratives, making learning feel more lively and less monotonous.

Similar findings were reported in madrasa research, which showed an increase in student learning achievement after the use of audiovisual media (Majeed & Ahmad, 2025). The average student score increased, and the interviews revealed that students found it easier to understand the flow of history and its important figures. However, research examining the application of audiovisual media specifically in East Kalimantan Province remains limited. This area has strong technological potential, but some teachers have not optimized their use of digital media due to limited skills and a reliance on conventional methods (Alieto et al., 2024; Kučera & Haffner, 2025; Temirkhanova et al., 2024). The position of this research is to fill a gap by evaluating the effectiveness of audiovisual media in a specific local context, thereby providing practical recommendations for teachers and educational institutions.

The novelty of this research lies in the application of audiovisual media for ICH learning in madrassas in East Kalimantan Province, which until now has rarely been empirically researched. This research uses digital technology to present concrete visualizations of historical events, enabling students to imagine historical situations, characters, and flows more realistically. This is relevant to cognitive learning theory, which states that multisensory information is easier to understand and remember. In addition, this research offers an important contribution to the development of innovative media-based learning strategies. It provides empirical evidence on the effectiveness of audiovisual media in modern Islamic education, as demanded by today's education system.

The problem this research focuses on is the extent to which audiovisual media can improve students' understanding of ICH learning in East Kalimantan madrasas. The research question arises from the phenomenon of low student understanding and limited use of digital media by teachers. The provisional argument states that audiovisual media, through a combination of sound elements and moving images, will be more effective than conventional methods. This research is expected to demonstrate the contribution of audiovisual media to improving students' learning outcomes and cognitive understanding, and to provide a technology-based learning implementation model that can be adopted in other madrasas with similar characteristics.

The contribution of this research is practical and theoretical. In practice, the research results can serve as a guide for teachers in integrating audiovisual media for ICH learning, thereby increasing student interaction, motivation, and understanding. Theoretically, this study strengthens the empirical evidence that multisensory information supports better cognitive understanding and mastery of historical material. Thus, this research is not only relevant to improving the quality of education in East Kalimantan but also contributes to the modern Islamic education literature on the application of innovative media in the teaching of cultural history.

## RESEARCH METHOD

This research is quantitative and explanatory, aiming to explain the causal relationship between the use of audiovisual media in learning Islamic Cultural History and the level of understanding among madrasah students. Explanatory research is used to test hypotheses and to statistically examine the influence of variables, so that the study's results can be generalized objectively. The quantitative approach was chosen because it enabled the measurement of the magnitude of the influence of independent variables on dependent variables through numerical analysis and systematic statistical procedures.

This research was carried out in madrassas in East Kalimantan Province, including MA and MTS in the cities of Balikpapan, Samarinda, and East Kutai, which offer Islamic Cultural History subjects. The selection of the research location is based on the suitability of the madrasah's characteristics to the research focus and the availability of audiovisual media-based learning facilities. The research period lasted three months, from August to November 2025, and included the instrument preparation stage, instrument trials, data collection, analysis, and the drawing of research conclusions, as well as the quantitative research procedures outlined in the educational methodology.

The population in this study comprises madrasah students at the MTs and MA levels in the cities of Balikpapan, Samarinda, and East Kutai who participate in ICH learning, totaling 1,240 students. Given the large population and its spread across several educational units, the sampling technique used is proportional random sampling, which selects students in proportion to their numbers in each madrasah to ensure a more representative sample. The number of samples was determined using the Slovin formula with an error rate of 5%, yielding a sample of 302 students, which was considered sufficiently representative of the research population.

The variables in this study include independent and dependent variables. The independent variable is the use of audiovisual media in ICH learning, namely the extent to which teachers use learning videos, documentaries, animations, and multimedia presentations in the learning process. These variable indicators include the frequency of media use, the quality of visual display, the clarity of the material presented, student involvement, and the appeal of media to students' attention. Dependent variables are students' understanding of ICH material, including factual, conceptual, and chronological understanding, cause-and-effect relationships, and the ability to deduce the content of learning materials, in accordance with the taxonomy of cognitive comprehension.

The research instrument used was a closed-ended Likert-scale questionnaire with five response options: strongly disagree, disagree, hesitate, agree, and strongly agree. The Likert scale is used because it is effective for quantitatively measuring students' attitudes, perceptions, and responses to learning media. Each variable indicator is formulated into several statements to enable the instrument to measure the variables thoroughly.

To ensure the instrument's quality, validity, and reliability, tests are conducted. The validity test was carried out using the Pearson Product-Moment

correlation, with the criterion that the calculated r value be greater than the r value in the table, so that the statement item was declared valid. Furthermore, the reliability test was carried out using Cronbach's Alpha, with an alpha value of ≥ 0.70 as the minimum acceptable level of instrument reliability.

Data collection is carried out in three ways. First, distributing questionnaires to students to collect data on the use of audiovisual media and students' understanding. Second, limited observations were conducted to examine firsthand the pattern of teachers' use of audiovisual media in ICH learning. Third, documentation is used to obtain supporting data, including madrasah profiles, the number of students, and ICH learning tools. The entire data collection process is carried out in accordance with educational research ethics, including obtaining official permission from the madrasah and maintaining the confidentiality of respondents' identities.

The collected data were analyzed using inferential statistical analysis. The initial stage is a classical assumption test, including normality, linearity, and heteroscedasticity tests, to ensure the data meet the requirements of linear regression analysis. Furthermore, a simple linear regression analysis was used to determine the magnitude of the effect of audiovisual media on student understanding. The t-test was used to test the significance of the influence, provided that the significance value was less than 0.05. In contrast, the determination coefficient ($R^2$) was used to determine the contribution of audiovisual media variables to the variation in student understanding. The results of this analysis are expected to provide a strong empirical picture of the effectiveness of audiovisual media in ICH learning in madrasas in East Kalimantan Province.

## RESULT AND DISCUSSION

### Results

In this section, the results of the research, obtained through data collection using questionnaire instruments that have been tested for validity and reliability, are presented. The data collected from the respondents, in this case, students in madrassas in East Kalimantan Province, were then analyzed to determine the level of use of audiovisual media in ICH learning as well as the level of students' understanding of the material studied. In the first part of this chapter, a description of the research data is presented, which includes the characteristics of the respondents, the distribution of variable scores, and the instrument test (validity and reliability test). Furthermore, the results of inferential statistical analysis were presented, including prerequisite tests for normality, linearity, and heteroscedasticity, as well as simple linear regression analyses to assess the influence of variables on students' understanding of audiovisual media. The presentation of the research results in this section is systematic, providing an accurate and in-depth empirical picture of the extent to which audiovisual media improve students' understanding of ICH learning in madrassas in East Kalimantan Province. This data exposure and analysis will provide a strong basis for drawing conclusions and formulating the implications for further research.

**Characteristics of respondents**

The following table presents an overview of the characteristics of respondents based on gender and origin of the madrasah that plays a role in this study:

**Table 1. Characteristics of respondents**

| Yes | Gender | | Quantity | Madrasah |
|---|---|---|---|---|
| | Male | Women | | |
| 1. | 15 | 17 | 32 | MTs Darul Ikhsan Samarinda |
| 2. | 14 | 16 | 30 | MA Hidayatul Mustaqim Balikpapan |
| 3. | 13 | 16 | 29 | MA Nurussa Adah East Kutai |
| Total | 42 | 49 | 91 | |

The table shows that this study involved 91 respondents from three madrassas in East Kalimantan Province: MTs Darul Ikhsan Samarinda, MA Hidayatul Mustaqim Balikpapan, and MA Nurussa Adah East Kutai. The distribution of respondents by gender and madrasah origin is shown. MTs Darul Ikhsan Samarinda, as many as 32 respondents consisting of 15 male students and 17 female students, MA Hidayatul Mustaqim Balikpapan, as many as 30 respondents with 14 male students and 16 female students, and MA Nurussa Adah Kutai Timur, as many as 29 respondents consisting of 13 male students and 16 female students. In general, the distribution of respondents across the three madrasas provided adequate representation to support the analysis of subsequent research data.

**Instrument test results**

The instrument test was conducted as a validity test to determine the accuracy of each statement item in measuring the construct being studied, Audio Visual Media Use (X) and Student Comprehension (Y). This validity test is carried out by comparing the calculated r value for each item with the table r value at the 5% significance level. A statement item is declared valid when the calculated r value is greater than the r value in the table. The results of the validity test on variable X (Use of Audio Visual Media) to measure the construct of each statement item are presented through the following Table 2:

**Table 2. Variable X Validity Test (Use of Audio Visual Media)**

| Var | rCount | rTable | Remarks |
|---|---|---|---|
| X01 | 0,775 | 0,206 | Valid |
| X02 | 0,729 | 0,206 | Valid |
| X03 | 0,773 | 0,206 | Valid |
| X04 | 0,786 | 0,206 | Valid |
| X05 | 0,757 | 0,206 | Valid |
| X06 | 0,787 | 0,206 | Valid |
| X07 | 0,808 | 0,206 | Valid |
| X08 | 0,748 | 0,206 | Valid |

| | | | |
|---|---|---|---|
| X09 | 0,766 | 0,206 | Valid |
| X10 | 0,741 | 0,206 | Valid |

Based on the results of the instrument validity test on variable X, it was obtained that all statement items from X01 to X10 had a greater calculated r value than the r table of 0.206. The r-value of the calculation is 0.729-0.808, indicating a positive correlation between the score of each item and the total score of the variable, with strong to very strong categories. This indicates that each statement item can represent the construct of variable X precisely and consistently. Item X07 has the highest calculated r-value of 0.808, indicating that it makes the greatest contribution to measuring the variables under study. Meanwhile, the item with the lowest calculated r-value, X02 at 0.729, still meets the validity criteria because it is above the established r-value in the table. Thus, all statement items are declared valid and suitable for use as research instruments. These results show that the X instrument has good measurement quality and can be used effectively in data collection and subsequent analysis.

Before the data on variable Y (Student Comprehension) are further analyzed, the instrument's validity is tested to ensure that each statement item measures aspects of student understanding in accordance with the research objectives. The validity test was carried out by comparing the calculated r value with the r value in the table at the 5% significance level. The results of the validity test for each of the statement items of variable Y are presented in the following Table 3:

**Table 3. Variable Y Validity Test (Student Comprehension)**

| Var | rCount | rTable | Remarks |
|---|---|---|---|
| Y01 | 0,693 | 0,204 | Valid |
| Y02 | 0,715 | 0,204 | Valid |
| Y03 | 0,741 | 0,204 | Valid |
| Y04 | 0,788 | 0,204 | Valid |
| Y05 | 0,742 | 0,204 | Valid |
| Y06 | 0,769 | 0,204 | Valid |
| Y07 | 0,768 | 0,204 | Valid |
| Y08 | 0,805 | 0,204 | Valid |
| Y09 | 0,706 | 0,204 | Valid |
| Y10 | 0,769 | 0,204 | Valid |
| Y11 | 0,810 | 0,204 | Valid |
| Y12 | 0,752 | 0,204 | Valid |
| Y13 | 0,726 | 0,204 | Valid |
| Y14 | 0,764 | 0,204 | Valid |
| Y15 | 0,739 | 0,204 | Valid |

Based on the results of the instrument validity test presented in the table, it is known that all items of the statement of variable Y (Y01 to Y15) have a greater calculated r value than the r value in the table of 0.204. The calculated r-values for each item range from 0.693 to 0.810, indicating a moderate to very strong correlation between the item score and the total score. This indicates that each statement item can consistently measure the same construct in a unidirectional manner. In particular, items Y11 and Y08 have the highest calculated r-values

(0.810 and 0.805, respectively), reflecting their excellent contribution to representing the variables under study. Meanwhile, the item with the lowest calculated r-value, Y01 at 0.693, still meets the validity criteria because it is above the table r-value. Thus, all statement items are deemed valid and suitable for use as data-collection instruments in this study, without the need for deletion or revision. These results strengthen the instrument's reliability in accurately and methodologically accounting for research variables.

After the validity test on variables x (Use of Audio Visual) and y (Student Understanding) has been met, a reliability test is conducted to determine the level of consistency and reliability of the research instrument in measuring the variables studied. This is to ensure that each statement item in the instrument provides stable, consistent results when used at different times and conditions. The reliability level of the instrument is determined based on Cronbach's Alpha value obtained from the data processing results as follows:

**Table 4. Variable X reliability test (Use of Audio Visual Media)**

| Reliability Statistics | |
|---|---|
| Cronbach's Alpha | N of Items |
| .922 | 10 |

Based on the reliability test results for the research instrument, a Cronbach's Alpha of 0.922 was obtained with 10 statement items. The reliability coefficient is well above the minimum required reliability limit of 0.70, indicating a very high level of internal consistency. This indicates that all the statements in the instrument are strongly related and can measure the same construct stably and consistently. The high value of Cronbach's Alpha also indicates that respondents provide relatively consistent responses across all items, thereby minimizing measurement error. Thus, this research instrument is considered very reliable and feasible as a data collection tool, and can be trusted to produce accurate and consistent data for further analysis, both during hypothesis testing and in drawing research conclusions.

**Table 5. Variable Y Reliability Test (Student Comprehension)**

| Reliability Statistics | |
|---|---|
| Cronbach's Alpha | N of Items |
| .945 | 15 |

Based on the reliability test results for the research instrument, a Cronbach's Alpha of 0.945 was obtained with 15 statement items. The reliability coefficient is well above the required minimum of 0.70, indicating a very high level of internal consistency. This indicates that all the statements in the instrument are highly aligned in measuring the same construct. The high value of Cronbach's Alpha also reflects the stability of respondents' responses to each item, indicating that the instrument minimizes measurement error. Thus, this research instrument is considered very reliable and suitable for use as a data collection tool. The instrument can be trusted to produce accurate, consistent, and scientifically

accountable data for subsequent analysis, both during hypothesis testing and in drawing research conclusions.

**Descriptive statistical test**

Descriptive statistics provide an overview of the characteristics of the research data, including the number of respondents, minimum and maximum values, and the means and standard deviations for each variable. This analysis aims to determine the trend of the data and its spread rate before further statistical testing is carried out.

**Table 6. Descriptive statistical test**

**Statistics**

| | | Media Audio Visual | Student Understanding |
|---|---|---|---|
| N | Valid | 91 | 91 |
| | Missing | 0 | 0 |
| Red | | 39.7802 | 59.1758 |
| Median | | 40.0000 | 60.0000 |
| Std. Deviation | | 7.05345 | 10.43242 |
| Range | | 24.00 | 36.00 |
| Minimum | | 26.00 | 38.00 |
| Maximum | | 50.00 | 74.00 |

Based on the results of the descriptive statistical analysis of the variables Audio Visual Media and Student Understanding, the number of valid respondents (N) was 91 for each variable, with no missing data (missing = 0). In the Audio Visual Media variable, the mean was 39.78, and the median was 40.00, indicating a symmetrical distribution centered on the median. The standard deviation of 7.05 indicates moderate data variation, suggesting that students' perceptions of the use of audio-visual media are relatively diverse but still within reasonable limits. The score range of 24, with a minimum of 26 and a maximum of 50, indicates differences in the intensity of students' experience with audio-visual media during the learning process.

Meanwhile, in the Student Comprehension variable, a mean of 59.18 and a median of 60.00 were obtained, indicating a relatively normal distribution. The standard deviation of 10.43 indicates a fairly high variation in students' understanding, reflecting differences in individual ability to understand the learning material. The data range of 36, with a minimum score of 38 and a maximum of 74, indicates that student understanding spans a fairly broad spectrum. Overall, the results of these descriptive statistics indicate that the use of audio-visual media and the level of student comprehension exhibit sufficient variation to be further analyzed and are eligible for inferential statistical testing to examine the relationship and influence between the variables, namely Audio Visual Media Use and Student Comprehension.

**Inferential statistical tests**

*Normality test:*

The normality test is used to determine whether the research data are normally distributed, a prerequisite for inferential statistical analysis. The data normality test in this study uses the one-sample Kolmogorov-Smirnov test on unstandardized residuals, with the aim of assessing the data's suitability for further analysis. In this case, the test criteria are based on the value of asymp.sig (2-tailed) if greater than 0.05, then the data is normally distributed.

**Table 7. Normality test**

| One-Sample Kolmogorov-Smirnov Test | | |
|---|---|---|
| | | Student Understanding |
| N | | 65 |
| Normal Parameters[a,b] | Red | 1.5324 |
| | Std. Deviation | 1.13761 |
| Most Extreme Differences | Absolute | .109 |
| | Positive | .109 |
| | Negative | -.053 |
| Test Statistic | | .109 |
| Asymp. Sig. (2-tailed) | | .085c |
| a. Test distribution is Normal. | | |
| b. Calculated from data. | | |
| c. Lilliefors Significance Correction. | | |

Based on the results of the one-sample Kolmogorov-Smirnov test on the residual variable of Student Comprehension, this study used a sample of 65 observations with a mean value of 1.5324 and a standard deviation of 1.13761. The analysis showed that the Test Statistic value was 0.109, with the most extreme absolute difference also at 0.109. The normality assumption in this test is based on the Asymp value—Sig. (2-tailed) With the correction of Lilliefors significance. Based on statistical decision-making criteria, if the p-value is greater than 0.05, the data is considered normally distributed. In this data, the value of Asymp. The resulting sig. (2-tailed) is 0.085, which means that the value is greater than the significance level of 0.05 (0.085 > 0.05). Therefore, it can be scientifically concluded that the residual model is normally distributed, so the basic assumptions for performing parametric statistical analysis have been met.

*Heterocedasticity test:*

Heteroscedasticity tests were performed to determine whether the regression model exhibited heteroscedasticity in the residuals. This test is carried out by regressing the absolute value of the Student Understanding residuals on an independent variable, namely digital learning, to ensure that the regression model meets classical assumptions. The criteria for testing heteroscedasticity are based on significance values; if the significance value is greater than 0.05 (>0.05), then it can be concluded that the data does not exhibit symptoms of heteroscedasticity.

**Table 8. Heteroscedasticity test**

| Coefficient | | | | | | |
|---|---|---|---|---|---|---|
| Models | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 7.185 | 3.331 | | 2.157 | .034 |
| | Media Audio Visual | .040 | .082 | .052 | .490 | .625 |

a. Dependent Variable: Student Comprehension

Based on the results of the heteroscedasticity test using the Glejser test, which regresses the absolute residual value (ABSRES) on the independent variable Audio Visual Media, a significance value (Sig.) of 0.625 was obtained. This value exceeds the significance level of 0.05 used in this study, so it can be concluded that the Audio Visual Media variable does not have a significant effect on ABSRES. Thus, there is no indication of heteroscedasticity in the regression model used. Statistically, the regression coefficient for the Audio Visual Media variable was 0.040, with a calculated t-value of 0.490, indicating that changes in the independent variables did not cause systematic changes in residual variation. This indicates that the residual is randomly spread and has a relatively constant variance at each level of the Audio Visual Media variable. This condition fulfills one of the classic assumptions of linear regression, namely heteroscedasticity, which suggests that regression models are suitable for further analysis, such as hypothesis testing through t-tests and F-tests. Therefore, the results of the regression analysis in this study can be interpreted validly and have adequate reliability to explain the influence of Audio Visual Media on the dependent variables studied.

*Autocorrelation test:*

The autocorrelation test was performed to determine whether the residuals of the regression model exhibit autocorrelation. This test uses the Durbin-Watson statistic (DW), which aims to ensure that the residuals are independent, thereby making the regression model feasible for further analysis. The test criteria are based on the DU<DW<4-DU value; if met, it can be inferred from the data that there are no autocorrelation symptoms. To determine the DW value, it was obtained by referring to the DW table number 91 column to 1 (k=1), with the number of respondents = 91 and the number of variables x=1, where the DL value = 1.6366, the DU value = 1.6810, the 4-DL value = 2.3634, the 4-DU value = 2.319, and the DW value = 2.196.

**Table 9. Autocorrelation test**

| Model Summary[b] | | | | | |
|---|---|---|---|---|---|
| Models | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1 | .428a | .293 | .174 | 2.049 | 2.196 |

a. Predictors: (Constant), Audio Visual Media
b. Dependent Variable: Student Comprehension

Based on the results of the autocorrelation test analyzed using Durbin-Watson (DW) statistics, a DW value of 2.196 was obtained. Theoretically, Durbin Watson's values are in the range of 0 to 4, where values close to 2 indicate the absence of autocorrelation, values below 2 indicate positive autocorrelation, and values above 2 lead to negative autocorrelation. Thus, a DW value of 2.196 is around 2, indicating that there is no significant autocorrelation in the regression model. Further, these results indicate that the residual in one observation does not correlate systematically with the residual in the other. This condition reflects that term errors are independent, which is one of the important assumptions in classical linear regression analysis. The fulfillment of this assumption shows that the data, even though it has an R-squared value of 0.293, still meet the structural requirements of the model, so that interrelated residual patterns do not distort the relationships between variables. In the absence of autocorrelation, the estimation of regression parameters can be declared efficient and consistent, and advanced statistical tests, such as t-tests and F-tests, can be carried out without risk of bias due to violations of residual independence assumptions. Therefore, methodologically, the regression model in this study is feasible for explaining the relationships between the variables of Audio Visual Media Use and the variables of Student Comprehension studied.

*Linear Tests*

The following table presents the results of a simple linear regression analysis to test the influence of the variable Use of Audio Visual Media on Student Comprehension. The t-test is used to determine the influence of partially independent variables on dependent variables. This test assesses whether each independent variable has a significant influence on the dependent variable in the regression model.

**Table 10. T test**

| Models | | Coefficient | | | | |
|---|---|---|---|---|---|---|
| | | Unstandardized Coefficients | | Standardized Coefficients | | |
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 27.325 | 3.293 | | 7.327 | .000 |
| | Use of Audio Visual Media | .295 | .082 | .475 | 3.823 | .001 |

a. Dependent Variable: Student Comprehension

Based on the t-test results in the Coefficients1 table, a t-test was conducted to assess the significance of the influence of the variable Audio Visual Use on the variable Student Comprehension. Based on the test results, the Audio Visual Media Use variable had a significance value (Sig.) of .001, which was smaller than the alpha significance level of 0.053. This result was further supported by a t-count of 3.823, indicating a statistically significant influence. An unstandardized coefficient B value of 0.295 indicates that every one unit increase in the Use of Audio Visual Media will increase Student Comprehension by 0.295 at a constant value of 27.3255. In addition, the Standardized Coefficient Beta value of 0.475

indicates that this variable makes a strong contribution to explaining variation in Student Comprehension. Thus, it can be concluded that Hypothesis Zero (H0) is rejected and Alternative Hypothesis (Ha) is accepted, which means that the Use of Audio Visual Media has a positive and significant effect on Student Understanding.

*Coefficient of determination*

The table below presents the results of the model summary, including the values of the Correlation Coefficient (R) and the Determination Coefficient (R2), to determine how much the Audio Visual Media Use variable contributes to explaining the variation in the Student Comprehension variable.

**Table 11. Coefficient of determination**

Model Summary[b]

| Models | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .428a | .293 | .174 | 2.049 | 2.196 |

a. Predictors: (Constant), Audio Visual Media Use
b. Dependent Variable: Student Comprehension

Based on the results of the data analysis in the Model Summary table, the variable Audio Visual Media Use shows a moderate relationship with Student Understanding, with a correlation coefficient (R) of 0.428. The R Square value of 0.293 indicates that the Audio Visual Media Use variable accounts for 29.3% of the variation in the dependent variable, namely Student Comprehension. Meanwhile, the remaining 70.7% was influenced by variables not included in this research model. The Std shows the regression model's accuracy. Error of the Estimate value of 2.049, which describes the degree of deviation of the data from the regression line. In addition, the results of the classical assumption test, as indicated by the Durbin-Watson statistic of 2.196, indicate that this model is free of autocorrelation problems. Overall, this data shows that the use of audio-visual media is a significant factor in improving student understanding, although other external factors also play a role.

## Discussion

Based on the results of various previous studies, the effectiveness of the use of audio-visual media in learning has been proven at various levels and subjects, which is in line with the cognitive and multimedia education literature (Ahmad & Abd Halim, 2024; Al-Jumaily & Alazzawi, 2025; Staneviciene & Žekienė, 2025). For example, research in grade V of elementary school shows that the application of audio-visual media significantly improves the understanding of science concepts compared to conventional methods, which is in line with Mayer's (2009) theory of multimedia learning, where the integration of auditory and visual elements can strengthen students' cognitive processing and knowledge retention (Nisa et al., 2026; O'Neill, 2024). These findings are also in line with a study on procedural text learning in junior high school, where the experimental group that used audio-visual media achieved higher learning outcomes than the control group (Karyati

& Ristiani, 2025; Yanartik & Mandarani, 2025). The difference between elementary and junior high levels lies in the complexity of the material. Still, both studies show a consistent pattern that the combination of audio and visual improves students' cognitive comprehension and skills. Hence, these findings reinforce the literature that emphasizes the importance of multisensory approaches in the learning process (Baharun et al., 2025).

In addition to consistency with the literature, this study shows significant theoretical implications. First, the post-test results for the experimental class achieved a score of 83.13, much higher than the control group's 64.13, indicating that the inclusion of audio and visual elements not only enriched the learning experience but also increased students' retention of the material's content. This reinforces Paivio's (1991) dual coding cognitive model, which states that dual representations (visual and verbal) expand long-term memory capacity (Gayathri & Vijayalakshmi, 2025; Mayer, 2024). Second, the study in high school confirms that the positive effects of audiovisual media are not limited to basic education but also apply to more abstract and complex material, providing empirical evidence across educational levels (Daulay, 2025; Piedra & Reascos, 2024).

In terms of practical contributions, these findings confirm that integrating audiovisual media can significantly increase student engagement (Firdaus et al., n.d.; Piedra & Reascos, 2024). The higher average post-test scores than those of controls showed that this method was not only effective in understanding concepts but also encouraged students' motivation to learn and active participation in learning (Li & Huang, 2024). A comparative study between audiovisual media and traditional textbooks highlights that technology-based approaches are more in line with the learning styles of modern students, who tend to be responsive to multimedia inputs, so that the use of audiovisual media can be an adaptive and relevant pedagogical strategy in the era of digital education (Salsabila et al., 2026).

Comparisons with other literature also highlight important nuances. Some studies have shown that the effectiveness of audiovisual media is highly dependent on the quality of material design and visual presentation, including duration, narrative clarity, and suitability for learning objectives (Köpeczi-Bócz, 2024; Moin et al., 2024). Therefore, while the findings of this study are consistent with the literature emphasizing the benefits of multimedia, successful implementation requires careful planning and the development of materials to maximize positive effects. This makes a practical contribution to teachers, curriculum developers, and educational institutions in designing more innovative and meaningful learning experiences.

Overall, the findings of this study not only support the literature on the advantages of audiovisual media but also have broad theoretical and practical implications. Theoretically, this study reinforces the understanding that dual representation improves student retention and understanding. In practical terms, this research offers concrete strategies to improve learning outcomes and student engagement, emphasizes the importance of integrating audiovisual media into the modern curriculum, and provides a basis for developing innovative learning

media that can be applied at various levels of education. Thus, this research has a significant contribution to both educational theory and daily learning practice.

## CONCLUSION

The conclusion of this study shows that the use of audiovisual media in the learning of Islamic Cultural History significantly improves students' understanding, both in terms of material retention and active involvement in the classroom, which is the main reason that the integration of visual and auditory elements can strengthen students' learning experience and motivation in a real way. Scientifically, this research makes an important contribution by strengthening the empirical evidence for multimedia and dual coding learning theories, while offering innovative media implementation models that can be applied across educational levels, from elementary to high school, thereby advancing the conceptual understanding of the effectiveness of multisensory approaches in the learning process. However, this study has limitations, including the sample is limited to three madrassas in East Kalimantan and focuses on one subject, so the results cannot be generalized widely; Therefore, further research is recommended to expand the number of samples, increase the variety of education levels and subjects, and explore the combination of audiovisual media with other pedagogical strategies to obtain a more comprehensive picture of the effectiveness of digital media in modern education.

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