



## The effect of learning media on student motivation student learning motivation in mathematics subjects

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**Abstract:** Growing student motivation is one of the techniques in developing the ability and willingness to learn. The purpose of this study was to determine the effect of instructional media on students' learning motivation in mathematics in elementary schools. This type of research is "ex post facto" with a research design using a one-shot case study. The subjects in this study were class IV students at SDN 028 Kubang Jaya class A and B, each of which had 15 students. The sampling technique uses non-probability sampling, namely purposive sampling. The research instruments used were observation and questionnaires. The data analysis technique uses product moment correlation with the help of SPSS 23. SPSS analysis of the product moment correlation shows the significance level of sig. (2-tailed) = 0.531, it can be concluded that the two variables are included in the "enough" category. From this analysis it can be concluded that there is an influence of learning media on learning motivation of 28.19%, other variables not mentioned in the study reach 71.81%.

**Keywords:** Learning media; Learning motivation; Product moment correlation

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### INTRODUCTION

The quality of education is influenced by the facilities available for learning, the efficient use of time, and the use of learning media or teaching materials (Hafidha et al. 2022). To get the most out of their education, students and teachers need to have access to a variety of effective and interesting learning tools. In accordance with this thought, Nugroho (2015) argues that media should be considered an important component of the teaching and learning process to realize educational goals in the public sphere and educational goals in schools in particular. Quoting Putri (2017), education is the process of delivering knowledge from an educator to learners through selected media. This transmission of knowledge can be done according to the educator's wishes. Therefore, it is very important for teachers to use various media as educational tools, both inside and outside the classroom (Hafizatul, 2020). To facilitate the transfer of knowledge from teachers to students, teachers must be proficient in using media in the classroom; otherwise, the intended role of the media will not function properly. This is because the impact of the media cannot be appreciated if its use is not in accordance with the subject matter and the desired learning outcomes (Moto, 2019).

But from what I've seen at SDN 028 Kubang Jaya, learning media are not being used in the best and most effective way. This can be seen when the teacher teaches and conveys learning materials by using only package books and blackboards, and students will certainly only read and do the questions in them if given assignments by the teacher.



Sundayana (2016) says that the main goal of learning media is to help people understand the messages they send. Because of this, it is clear that good learning media will pique students' interest and get them excited to learn. In addition, Ermawati (2020) said that learning media arouse students' interest and increase the quantity of learning activities; that students are more involved; there are more interactions and learning resources; learning can be made more interesting; and the learning process is enhanced in such a way that students can understand fewer verbal messages, which cross the boundaries of space, time, energy, and senses. Based on what we've talked about so far, it's clear that using media in the classroom is very helpful for students, as it makes it much easier for them to understand hard, abstract ideas.

Based on what the researchers have said above about their observations and research at SDN 028 Kubang Jaya, the teacher hasn't used any concrete learning tools in her lessons. Teachers teach directly and only use books and whiteboards. They don't use learning tools like model buildings or flat shapes, which makes students less interested in learning.

Motivation is what pushes students to change their behavior both inside and outside of the classroom (Kurniawan, 2014). Meanwhile, Arief (2011) has the perspective that motivation can be said to be a driving force within students that fosters the learning process, which affects the continuity of the learning process and provides direction so that the desired goals can be achieved. Wahyuningrum's (2015) perspective states that motivation is something that can be involved in stimulating behavior towards certain goals where previously there was no movement at all towards those goals. Therefore, based on the definition of motivation that has been presented, it can be concluded that learning motivation is something that has an impact on a person or group of people when carrying out the process of transferring knowledge.

This is in line with several other relevant studies, including research conducted by Nugroho (2015), using quasi-experimental research methods. Data collection was carried out with tests and by filling out questionnaires about learning motivation. The results showed that there was an effect of using video media and learning animations on motivation and learning achievement. Furthermore, research conducted by Kartika Wahyuningrum (2015) with an ex post facto research method through a quantitative approach Data collection techniques using questionnaires and data analysis using simple regression analysis The results showed that 4.4% of student learning motivation was influenced by learning facilities at school (Wahyuningrum, 2015).

Based on the review of relevant research presented above, it can be concluded that learning media is a tool used by teachers in delivering learning materials in class. By using media, a teacher is expected to be easier in delivering material, and students can also receive lessons well and pleasantly so as to generate student motivation to learn mathematics (Herawati, 2017). Looking at the conditions that occur in the field, we can tell that there is a gap between the ideal conditions that should occur at school and the conditions that occur at school. In connection with the lack of use of learning media in the learning process, the researcher considers it necessary to examine "the effect of learning media on student learning motivation in mathematics subjects in elementary schools."

## METHOD

This research is ex post facto research. The basis of this ex post facto research is to assess different subjects on independent variables and try to determine different consequences (Jaedun, 2011). The purpose of this study was to determine the effect of learning media on student learning motivation in mathematics subjects in elementary schools. The research design used is a one-shot case study. This design can be described as follows:

|     |
|-----|
| X 0 |
|-----|

Source: Sugiyono (2014)

Where X: Treatment given (Independent Variable) and 0 : Observation (dependent variable).

This study only involved one class as an experimental group without a comparison group (control class). The subjects in this study were students of classes IV A and IV B at SDN 028 Kubang Jaya, each class consisting of 15 students. Sampling using a non-probability sampling technique, namely purposive sampling, the data is collected by filling out a questionnaire. A questionnaire is an indirect method of data collection (researchers do not directly ask respondents questions) (Harnovinsah, 2019).

## RESULTS AND DISCUSSION

### Results

#### *Learning media (variable X)*

Data from learning media variables can be obtained from a questionnaire consisting of 19 questions and statements filled in by a sample of 30 students. The highest score for the variable data is 70 and the lowest score is 51. The median score is 59, the mode score is 57, the average score is 59.3, and the standard deviation is 4.23.

Based on the data mentioned above, the categorization of learning media variables can be arranged in Table 1.

**Table 1.** Categorization of Learning Media Variables

| No | Category | Value range | Frequency | Percentage |
|----|----------|-------------|-----------|------------|
| 1  | High     | 95-58       | 16        | 53,3%      |
| 2  | Low      | 57-19       | 14        | 46,7%      |

Based on the information presented in Table 1, it can be concluded that 16 out of 30 students in class IV feel that the use of learning media is high, which is about 16 students or 53.3 percent with a maximum score of 70, of which only 70 corresponds to one student, while the maximum score is 95 and there are 14 students or 46.7 percent who think it is sufficient.

#### *Learning Motivation (variable Y)*

Thirty students filled out a questionnaire with 19 questions and statements, and their answers were used to figure out the value of the variable Y. The maximum score is 95 from the variable data, the minimum score is 19, the lowest score is 46, the highest score is 83, then the mean or mean value is 67,5, the middle or median value is 68.5, while the values that appear frequently or mode are 69 and 73, and the standard deviation or standard deviation is 15.5. Based on the data mentioned above, the categorization of the learning motivation variable can be arranged in Table 2.

**Tabel 2.** Kategorisasi Variabel Motivasi Belajar

| No | Category | Value range | Frequency | Percentage |
|----|----------|-------------|-----------|------------|
| 1  | High     | 95-58       | 26        | 86%        |
| 2  | Low      | 57-19       | 4         | 13,3%      |

From the data presented in Table 2, it is evident that the majority of students exhibit a high level of learning motivation. Out of the total 30 students, 26 students, accounting for 86.7% of the sample, showed a strong inclination towards learning. This indicates a positive trend in student engagement and suggests that the students are enthusiastic and driven to acquire knowledge and skills.

However, the data also reveals a small portion of students who display a low level of learning motivation. Specifically, 4 students, making up 13.3% of the sample, exhibited limited enthusiasm towards learning. Identifying these students with lower motivation levels is crucial as it allows educators to address their individual needs and develop strategies to boost their engagement and interest in the learning process.

### Prerequisite Test Analysis

#### a. Data normality test

The data normality test is done to find out if the results of the questionnaire test are normal or not. By using the SPSS program at a significant level of 0.05. Researchers use SPSS version 23, namely Kolmogorov-Smirnov, to ensure the accuracy of the numbers.

##### 1) Learning media variables

**Table 3.** Data Normality Test Through SPSS 23

| Learning media | Kolmogorov-Sminov |    |              | Shapiro-Wilk |    |              |
|----------------|-------------------|----|--------------|--------------|----|--------------|
|                | Statistic         | Df | Significance | Statistic    | df | Significance |
|                | .192              | 30 | .062         | .950         | 30 | .171         |

The normality test conducted using SPSS 23 revealed interesting findings regarding the learning media variable. Specifically, the Kolmogorov-Smirnov test yielded a significance level of 0.062. This result suggests that the distribution of the learning media variable is not significantly different from a normal distribution at the conventional significance level of 0.05. In other words, the data points of the learning media variable exhibit a pattern that closely resembles a normal distribution, indicating that it meets the assumption of normality. This ensures the validity of subsequent analyses and enhances the reliability of the findings obtained from the dataset.

##### 2) Learning motivation variable

**Table 4.** Normality Test of Learning Motivation Data with SPSS 23

| Learning motivation | Kolmogorov-Sminov |    |              | Shapiro-Wilk |    |              |
|---------------------|-------------------|----|--------------|--------------|----|--------------|
|                     | Statistic         | df | Significance | Statistic    | df | Significance |
|                     | .092              | 30 | .200         | .978         | 30 | .777         |

Based on **Table 4**, the Kolmogorov-Smirnov normality test conducted on the data of the learning motivation variable resulted in a significance level of 0.200. Using SPSS version 23, researchers found that the variables representing learning motivation were statistically significant at a level  $> 0.05$ . So, it can be stated that  $0.200 \geq 0.05$ , the data analysis of learning motivation is normally distributed.

#### b. Homogeneity test

The homogeneity test was conducted to check for statistically significant differences between sample variances. This analysis is carried out to determine whether the variance formulas are driven or independent by using the appropriate comparative t-test. This evaluation is intended to help choose one or the other. This test uses the F-test as its methodology. The test can be conducted using the SPSS program, which produces more accurate and reliable results. The homogeneity test is conducted to ascertain either the distribution of the sample or the extent to which the data are consistent with each other. 0.05 is the level of significance applied.

**Table 5.** Homogeneity Test Results

| Levene statistic | df1 | df2 | Significance |
|------------------|-----|-----|--------------|
| 2.617            | 6   | 17  | .055         |

**Table 5** above shows that the homogeneity test produces a value of 0.055, confirming the hypothesis. The significance level used to determine whether the data is homogeneous or not is 0.05. So from **Table 5**, it can be concluded that the data studied is homogeneous because  $\geq 0.05$ .

#### c. Linearity test

The linearity test is used to determine whether the relationship between the independent variable and the dependent variable is linear or not. The following are the results of the linearity test through SPSS version 23.

**Table 6.** Linearity Test Results Through SPSS Version 23

|                                    |                          | Sum of Squares | df | Mean Squares | F       | Significance |
|------------------------------------|--------------------------|----------------|----|--------------|---------|--------------|
| Learning media*learning motivation | (Combined)               | 1894.658       | 12 | 157.888      | 73.120  | .057         |
|                                    | Between Groups           | 1736.509       | 1  | 1736.509     | 804.195 | .061         |
|                                    | Deviation from Linearity | 158.149        | 11 | 14.377       | 6.658   | .057         |
|                                    | Within Groups            | 36.708         | 17 | 2.159        |         |              |
| Total                              |                          | 1931.367       | 29 |              |         |              |

Table 6 above shows that the significance level is  $> 0.05$ , so there is a linear relationship between the learning average variable and the learning motivation variable.

d. Descriptive Analysis of Learning Media

**Table 7.** Descriptive Analysis of Learning Media

|                                  | Statistic   | Std. Error |
|----------------------------------|-------------|------------|
| Mean                             | 59.2667     | .77301     |
| 95% interval for mean Confidence | Lower Bound | 57.6857    |
|                                  | Upper Bound | 60.8477    |
| 5% Trimmed mean                  | 59.1481     |            |
| Median                           | 59.0000     |            |
| Variance                         | 17.926      |            |
| Std. Deviation                   | 4.23396     |            |
| Minimum                          | 51.00       |            |
| Maximum                          | 70.00       |            |
| Range                            | 19.00       |            |
| Interquartile Range              | 5.25        |            |
| Skewness                         | .604        | .427       |
| Kurtosis                         | .305        | .833       |

Based on Table 7, the minimum score of the learning media questionnaire results is 51, the maximum score is 70, the middle / median value is 59, the sum is 1778, the average / mean value is 59.2667, then the variance is 17.926, and the standard deviation is 4.23. The results of the descriptive statistics above were obtained through the calculation of the SPSS version 23 application with a sample size of 30 students. To see the results of the descriptive analysis of learning motivation, we can see in Table 8.

**Table 8.** Descriptive Analysis Results

|                    | N  | Minimum | Maximum | Sum     | Mean    | Std. deviation | Variance |
|--------------------|----|---------|---------|---------|---------|----------------|----------|
| Learning media     | 30 | 51.00   | 70.00   | 1778.00 | 59.2667 | 4.23396        | 17.926   |
| Valid N (listwise) | 30 |         |         |         |         |                |          |

e. Learning motivation

Table 9 provides comprehensive descriptive statistics for the learning motivation questionnaire. The maximum value obtained from the questionnaire is 83, indicating the highest level of learning motivation among the respondents. On the other hand, the minimum value recorded is 46, representing the lowest level of learning motivation. The median value (Me) stands at 68, while the mean (M) value is calculated as 67.23, indicating the average level of learning motivation among the participants. The variance of the data is computed as 66.59, and the standard deviation (SD) is determined to be 8.16. These statistical measures offer a comprehensive overview of the distribution and central tendency of the learning motivation

scores. To delve deeper into the results of the descriptive analysis for learning motivation, additional information can be found in Table 10. This Table 10 presents a comprehensive summary of the descriptive statistics, such as the frequency distribution, percentages, or additional measures of central tendency and variability.

**Table 9.** Descriptive Analysis of Learning Motivation

|                     |                       |             | Statistic | Std. Error |  |
|---------------------|-----------------------|-------------|-----------|------------|--|
| Learning motivation | Mean                  |             | 67.2333   | 1.48995    |  |
|                     | 95% interval for mean | Confidence  |           |            |  |
|                     |                       | Lower Bound |           | 64.1860    |  |
|                     |                       | Upper Bound |           | 70.2806    |  |
|                     | 5% Trimmed mean       |             | 67.4815   |            |  |
|                     | Median                |             | 68.0000   |            |  |
|                     | Variance              |             | 66.599    |            |  |
|                     | Std. Deviation        |             | 8.16081   |            |  |
|                     | Minimum               |             | 46.00     |            |  |
|                     | Maximum               |             | 83.00     |            |  |
|                     | Range                 |             | 37.00     |            |  |
|                     | Interquartile Range   |             | 10.25     |            |  |
|                     | Skewness              |             | .518      | .427       |  |
|                     | Kurtosis              |             | .527      | .833       |  |

**Table 10.** Descriptive Analysis Results

|                       | N  | Minimum | Maximum | Sum     | Mean    | Std. deviation | Variance |
|-----------------------|----|---------|---------|---------|---------|----------------|----------|
| Learning Motivation   | 30 | 46.00   | 83.00   | 2017.00 | 67.2333 | 8.16081        | 66.599   |
| Valid N<br>(listwise) | 30 |         |         |         |         |                |          |

### Hypothesis Test

Once the research findings meet the necessary criteria, it becomes possible to proceed with hypothesis testing. One commonly used method for examining the relationship between the independent variable (X) and the dependent variable (Y) is the product moment correlation, also known as Pearson's product moment test. This statistical analysis aims to ascertain the nature of the relationship between the variables when the data falls into the interval or ratio scale.

To shed light on the relationship between the variables under investigation, the research conducted a product-moment correlation analysis using SPSS 23. By employing this statistical technique, researchers can determine the strength and direction of the correlation between the independent and dependent variables. The results obtained from the analysis will provide insights into the association between the variables, helping to draw meaningful conclusions about their relationship.

**Table 11.** Correlation Test

|                     |                        | Learning media | Learning motivation |
|---------------------|------------------------|----------------|---------------------|
| Learning media      | Pearson Correlation    | 1              | .119                |
|                     | Significance(2-tailed) |                | .531                |
|                     | N                      | 30             | 30                  |
| Learning motivation | Pearson Correlation    | .119           | 1                   |
|                     | Significance(2-tailed) | .531           |                     |
|                     | N                      | 30             | 30                  |

The product moment correlation analysis resulted in a significance level of sig.(2-tailed) = 0.531%. In other words, the symbol value shows that learning motivation is already in the

sufficient category. Therefore,  $H_a$  is accepted and  $H_0$  is rejected. The researcher then calculated the effect of variable X on variable Y and entered it into the r-value distribution formula  $KP = r^2 \cdot 100\% = 0,5312 \cdot 100\% = 28,19\%$ .

The value of learning media (variable x) has an influence of 28.19 percent on learning motivation (variable y), and the remaining 71.81 percent is influenced by other variables outside this study. Then, to see whether the two data are significant or not, test the data with the  $t_{count}$  formula with the provisions of the error rate = 0.05;  $db = n-2 = 30-2 = 28$ , so that the  $t_{table} = 1.701$  is obtained. It turns out that  $3.345 > 1.701$  or  $t_{count} >$  from  $t_{table}$ . So the correlation or relationship between learning media and learning motivation is significant.

## Discussion

Based on the results of product moment correlation analysis through SPSS 23, it shows that the value of  $r = 0.531$  and the amount of contribution of learning media variables to learning motivation is 28.19%, and the  $t_{count} > t_{table}$  value proves that the data is significant. This means that  $H_0$  is rejected, and  $H_a$  is accepted. So, there is an influence of learning media on the learning motivation of class IV students at SDN 028 Kubang Jaya. Based on the explanation of the analysis results above, we can know that the learning medium is a factor that raises student learning motivation, namely extrinsic factors. Student learning motivation will affect the success of a lesson (Kurniawati et al., 2021). Learning media play a very important role in delivering learning material that makes students easily understand the material taught by the teacher (Wijayanti & Widodo, 2021). For this reason, teachers must be able to create interesting and varied learning media (Haryadi et al., 2021), because it will make students more enthusiastic about learning and create a teaching and learning atmosphere that is more colorful and impressive than the learning process that does not use learning media. The more interesting the learning media used by the teacher, the more enthusiastic students will be about participating in the classroom learning process (Rizkia, 2022). Likewise, various literature on the use of media in learning makes students more motivated (Toh, 2009; Smith, 2006); increases student understanding and memory, (Umainsih et al., 2017; Aleixo & Sumner, 2017; Damopolii & Rahman, 2019); and the use of learning media is very attractive to students (Pratiwi & Sudiby, 2018; Maryani, 2020; Haroky et al., 2019; Buchori & Setyawati, 2015). This is in line with research conducted by Panggabean & Shaleha (2022) showing that the use of learning media can increase student learning motivation if done well. Furthermore, research conducted by Inrianty et al. (2014) shows that the use of learning media is good for increasing student motivation and learning outcomes.

## CONCLUSION

The calculated results of the analysis indicate a significant relationship between learning media and student learning motivation, falling within the moderate category. Employing the KP formula, the ratio between the learning media variable (referred to as variable X) and the learning motivation variable (referred to as variable Y) amounts to 28.19%. These findings enable us to draw conclusions regarding the acceptance of  $H_a$  and the rejection of  $H_0$ .

Based on the data analysis, it is established that the influence of learning media on the learning motivation of fourth-grade students at SDN 028 Kubang Jaya accounts for 28.19% of the total variance. This outcome confirms the acceptance of  $H_a$ , indicating that learning media plays a significant role in shaping students' motivation to learn. It is important to note that 71.81% of the variance falls outside the scope of this research, suggesting that additional factors beyond the learning media also contribute to students' learning motivation.

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