



## COMPARATIVE ANALYSIS BETWEEN THE AUDIO-VISUAL AIDED PROBLEM BASED LEARNING MODEL AND THE DIRECT LEARNING MODEL ON THE SCIENCE LEARNING OUTCOMES OF ELEMENTARY SCHOOL STUDENTS

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### Abstract

*To achieve effective learning, the role of teachers in designing, implementing, and evaluating instruction is crucial. Selecting a suitable instructional model based on students' characteristics and the learning situation can create an enjoyable, challenging, and motivating learning environment for students. The objective of this experimental research is to examine the significant difference between the effects of Problem-Based Learning with audiovisual media and direct instruction models on fifth-grade students at SDN Kalisat 1. This experimental study employed a quasi-experimental design known as the Post Test Only Control Group Design. The population of this study consisted of 60 fifth-grade students from SDN Kalisat 1. The selection of the experimental and control groups was done randomly, with Class VA comprising 30 students selected as the control group, while Class VB comprising 30 students selected as the experimental group. Based on the research conducted in Class V at SDN Kalisat 1, there were significant differences in the learning outcomes between the application of Problem-Based Learning with audiovisual media and direct instruction models in the subject of Natural Sciences (IPA). This can be seen from the average learning outcomes of students using Problem-Based Learning with audiovisual media, which were 77.33 with a standard deviation of 8.27, while the average learning outcomes of students using direct instruction were 72.66 with a standard deviation of 7.738. Furthermore, the t-test with a significance level of  $\alpha = 0.05$  and a t-table value of 2.00172 indicated that the calculated t-value (2.256) was greater than the t-table value (2.00172) and the significance value was 0.557.*

**Keywords:** Learning outcomes in Science, Audio-Visual Media, Problem Based Learning model.

### INTRODUCTION

Effective learning is learning that encourages learners to actively build knowledge and develop their own understanding. The activeness of students in the learning process increases the meaning of learning. Meaningful learning occurs when students experience direct experience and develop emotional intelligence through a constructivist approach (Angela, 2014; Kostianen et al., 2018). This experience can be gained through problem-solving activities carried out with a scientific approach, which results in evidence of relevant experiences in daily life (Dewa, 2019).

To achieve good learning, the role of teachers in designing, implementing, and evaluating learning is very important (Kurnia et al., 2019). The selection of learning models that are appropriate to the characteristics and situations of students can create a fun, challenging, and motivating learning atmosphere for students (Irwandani &

Rofiah, 2015). However, in reality, there is still a lot of learning that uses conventional learning models and teacher-centered approaches. The use of such conventional learning models can have a negative impact on student learning activities and outcomes (Nurdiansyah & Agree, 2016).

Learning is still dominated by the lecture method because teachers feel that they have not really taught if they do not explain at length (Muliandari, 2019). The learning process in the classroom is directed to the child's ability to memorize information, without being guided to understand the information he remembers to be related to daily life (Kartika et al., 2014). The learning model is indispensable for the learning process so that students are motivated to learn so that the science learning outcomes of elementary school students can increase. Increasing the interest in learning science of elementary school students, it is necessary to use diverse learning models and learning media that are relevant to the science material taught. In this case, the researcher seeks to overcome student learning problems and improve the learning process by applying the *Problem Based Learning* (PBL) model (Andini et al., 2016). The PBL model is a learning approach that uses real-world problems as a context for students to develop critical thinking skills and problem-solving skills. In addition to applying this model, the researcher also uses carefully selected audio-visual learning media, because these media strongly support the application of the PBL model. The use of learning media also aims to reduce student boredom in receiving learning, so that students become more active in the learning process (Annisa et al., 2020).

Based on the results of observations made by researchers in grade V of SDN Kalisat 1, Kalisat District, in the 2022/2023 school year, several findings were obtained. First, there is a dominance of the use of the lecture method in learning in the classroom. Teachers tend to explain the material directly to students, with few opportunities for students to actively participate and think critically. Second, students tend to focus more on memorization skills

information rather than understanding the concepts being taught. The learning process emphasizes more on memorizing information without any effort to relate it to daily life or practical application. Third, students' interest in science learning needs to be increased. Some students show a lack of interest and involvement in the learning, which can affect their motivation and learning outcomes. Based on these findings, changes in learning approaches are needed that can increase students' interest and science learning outcomes. The *Problem Based Learning* (PBL) learning model with the support of audio-visual media is an interesting alternative to apply, because it can encourage students to think critically, solve problems, and make learning more interesting and relevant to students' daily lives. Therefore, a study entitled "Comparative Analysis Between Audio Visual-Assisted *Problem-Based Learning* Model and Direct Learning Model on the Learning Outcomes of Class V Students of SDN Kalisat 1" was carried out

## RESEARCH METHODS

The research conducted is a type of quasi-experimental research. The research was conducted in class V of SDN Kalisat 1 in the even semester of the 2022/2023 school year. The population in this study is all grade V students of SDN Kalisat 1, with a total of 60 students. The sampling technique used is a random technique. After the

draw, the VB class is designated as the experimental class, while the VA class becomes the control class. In this study, the experimental class was given treatment using the *audio-visual assisted Problem Based Learning* model, while the control class did not receive the treatment. The research design used is *Post Test Only Control Group Design*, which can be seen in more detail in the research table.

| Class      | Treatment | Post-test |
|------------|-----------|-----------|
| Eksperimen | X         | Q1        |
| Control    | -         | Q2        |

The data collected in this study are the learning outcomes of students in the subject of Natural Sciences (IPA) in grade V of SDN Kalisat 1. The data collection method used in this study is the test method. Measuring students' science learning outcomes, an instrument in the form of an objective test question sheet consisting of 20 questions is used. The science learning outcome test used in this study is compiled based on the indicators of the elementary school curriculum for science subjects.

This study uses data analysis techniques that include descriptive statistical analysis and inferential statistics. Descriptive statistical analysis will include the calculation of *the mean*, highest score, lowest score, and standard deviation from the data of students' science learning outcomes. In addition, inferential statistical analysis was also carried out in this study using SPSS 25 to look at the T-Test with *Independent Sample*. Before testing the research hypothesis, a prerequisite test was carried out which included the normality test using Kolmogorov-Smirnov and Shapiro-Wilk, and the homogeneity test using *the Test of Homogeneity of Variances*. The purpose of this prerequisite test is to ensure that the data used in the analysis meets the necessary statistical assumptions

## RESULTS AND DISCUSSION

The results of the descriptive statistical analysis of this research data are presented in the following table..

Table 1. *Normality Test Table*

| Tests of Normality                    |                     |    |         |              |    |         |
|---------------------------------------|---------------------|----|---------|--------------|----|---------|
|                                       | Kolmogorov-Smirnova |    |         | Shapiro-Wilk |    |         |
|                                       | Statistic           | df | Itself. | Statistic    | df | Itself. |
| VA (control group)                    | ,152                | 30 | ,076    | ,946         | 30 | ,135    |
| VB (experimental group)               | ,160                | 30 | ,049    | ,947         | 30 | ,141    |
| a. Lilliefors Significance Correction |                     |    |         |              |    |         |

Normality testing with Kolmogorov-Smirnov and Shapiro-Wilk showed that the VA class (control group) had a significance number of 0.076 and 0.135 respectively, while for the VB class (experimental group) the statistical significance of the Komogrov-Smirnov and Shapiro-Wilk statistical values was obtained respectively of 0.049 and 0.141. This means that the significance of the two statistical tests on each data group is

greater than 0.05. So, it can be concluded that the data on student learning outcomes in each group have been distributed normally.

Table 2. *Table Statistic*

| Group Statistics |                         |    |         |                    |                 |
|------------------|-------------------------|----|---------|--------------------|-----------------|
|                  | class                   | N  | Mean    | Hours of deviation | Std. Error Mean |
| value            | VA (control group)      | 30 | 72,6667 | 7,73854            | 1,41286         |
|                  | VB (experimental group) | 30 | 77,3333 | 8,27682            | 1,51113         |

Based on the "Group Statistic" table above, it is known that the number of data from the VA class (control group) and the VB class (experimental group) is the same, which is 30 students. The average learning outcome score for the VA class (control group) was 72.6667, while for the VB class (experimental group) it was 77.3333. Thus, it can be concluded that there is a difference in student learning outcomes in the VA class (control group) and the VB class (experimental group). However, to prove whether the difference is significant (real) or not, it is necessary to interpret the output of the following "Independent Sample Test".

Table 3. *Table Independent Samples Test*

| Independent Samples Test |                             |                                          |         |                              |        |                 |                 |                       |                                           |         |
|--------------------------|-----------------------------|------------------------------------------|---------|------------------------------|--------|-----------------|-----------------|-----------------------|-------------------------------------------|---------|
|                          |                             | Levene's Test for Equality of Variance s |         | t-test for Equality of Means |        |                 |                 |                       |                                           |         |
|                          |                             | F                                        | Itself. | t                            | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference |         |
|                          |                             |                                          |         |                              |        |                 |                 |                       | Lower                                     | Upper   |
| value                    | Equal variances assumed     | ,350                                     | ,557    | -2,256                       | 58     | ,028            | -4,66667        | 2,06874               | -8,80770                                  | -,52563 |
|                          | Equal variances not assumed |                                          |         | -2,256                       | 57,740 | ,028            | -4,66667        | 2,06874               | -8,80810                                  | -,52523 |

Based on the above output, it can be seen that the value of Sig. Levene's Test Equality of Variances is  $0.557 > 0.05$ , so it can be interpreted that the variance of data between the VA class (control group) and the VB class (experimental group) is homogeneous or the same.

Based on the "Independent Samples Test" output table in the "Equal variances assumed" section, it is known that the Sig. (2-tailed) value is  $0.028 < 0.05$ , this means that  $H_0$  is rejected and  $H_1$  is accepted. Thus, it can be concluded that there is a significant (real) difference between student learning outcomes in VA classes (control groups) and student learning outcomes in VB classes (experimental groups).

The results of the above output are known to have a "Mean Difference" value of -4.667. This value shows the difference between the reasoning ability of students in the control class and the reasoning ability of students in the experimental class and the difference is -8,808 to -0.526 (95% Confidence Interval of the Difference Lower Upper).

It is known that the calculated  $t$  value is  $2.256 > t$  table of 2.00172. It can therefore be concluded that  $H_0$  is rejected and  $H_1$  is accepted. With this approach, it can be concluded that there is a significant difference in science learning outcomes between the group of students who are taught using the *audio-visual-assisted Problem Based Learning* model and students who are taught using the direct learning model in grade V of SDN Kalisat 1 Kalisat District.

## CONCLUSION

The conclusion of the results of the research that has been carried out shows that the average value of science learning outcomes of students who are taught using the *audio-visual assisted Problem Based Learning* model is 77.33 higher than the average learning outcomes of students who are learned using the direct learning model of 72.66 with testing the results of the hypothesis  $t$  calculation of  $2.256 > t$  table of 2.00172. So it can be concluded that  $H_0$  is rejected and  $H_1$  is accepted. Thus, it can be concluded that there is a significant difference in learning outcomes from science learning outcomes between the group of students who are taught using the *audio-visual-assisted Problem Based Learning* learning model and students who are taught using the direct learning model in grade V of SDN Kalisat 1, Kalisat District, in the 2022/2023 school year.

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