

## Effectiveness of Using Projects with Somatic Auditory Visualization and Intellectual Approaches about Learning Mathematics

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**Abstrak:** This study aims to determine the effectiveness of using visual aids with the SAVI approach (somatic, auditory, visualization, and intellectually) in learning mathematics. The type of research used is a quantitative approach. The population in the study were all class III students at MI Al-Islam Jamsaren. Sampling using a saturation sampling technique or saturation sampling is a sampling technique if all subjects or population objects are used as samples. The data collection method used was documentation, while the data analysis technique in this study used descriptive statistical analysis, the prerequisite test used the Kolmogorov-Smirnov normality test and the homogeneity test used the Levene test and the paired sample t-test used the SPSS version 15.0 application. Based on the results of the study, it was shown that there was effectiveness in using visual aids with the SAVI approach (somatic, auditory, visualization, and intellectually) in learning mathematics. By using the paired sample t-test formula to get the sig. (2 tailed) of  $0.01 < 0.05$ . With this it is stated that there is significance between the results of the scores before and after using visual aids with the SAVI approach (somatic, auditory, visualization, and intellectually) in learning mathematics.

**Keywords:** SAVI approach, learning mathematics

### INTRODUCTION

Learning is the occurrence of an interaction from students with an educator and learning resources in a learning environment. Teaching and learning activities are situations that are deliberately created, educators or teachers who create them to teach students (Kusumawati, 2019). In teaching and learning activities students are required to be more active. The activeness of students can be seen from all the activities of students both physically, mentally, individually or in groups. This can be done by changing attitudes, characteristics, teaching methods, learning strategies (Elitasari, 2022). Meanwhile, according to Sanjaya (Djalal, 2017) in the learning process by applying the right approaches, methods and strategies, also using supporting tools, both media and teaching aids, will result in a process of interaction between teachers and students so that learning objectives can be achieved.

Based on the research, the mathematics learning process for class III students at MI Al Islam Jamsaren is one of the subjects that students are not interested in. Learning that is still teacher-centered makes students more passive when learning is in progress and this causes students to feel bored and not focus on learning. With the problems that arise, the homeroom teacher applies various approaches or strategies to improve the quality of learning mathematics. In using appropriate learning strategies, approaches and methods, it will support the learning process. So that the homeroom teacher applies teaching aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach as the chosen solution to overcome these problems.

Learning aids are all objects and facilities that can be used in the learning process in order to clarify and make it easier for students to understand learning material (Juwairiah, 2013). Meanwhile, confirmed by Sudjana (Anas, 2014) visual aids are learning media that contain the characteristics of the concepts being studied. The SAVI approach (Somatic, Auditory, Visualization, and Intellectually) is an approach that is able to combine somatic (physical movement), auditory (hearing), visual (vision) and intellectual (thinking processes) in students themselves in the learning process (Yohani, 2014). Meanwhile, according to Meier (Wijayama, 2019) SAVI learning is learning that emphasizes that learning must make use of all the senses as much as possible so that the whole body and mind are involved in the learning process.

Siagian (Ruqoyyah, et. al., 2020) explain that mathematics is knowledge that is obtained by reasoning or thinking. According to Nur (2013) mathematics is one of the subjects studied from elementary education to university, the science that studies the relationship of patterns, shapes and structures. Madrasah Ibtidaiyah or MI is a form of formal education unit under the guidance of the Minister of Religion which organizes general education with the specifics of Islam at the basic education level (Indonesia, 2010). With existing problems, in applying various approaches or strategies to overcome problems. In increasing success in learning mathematics can be done by using a strategy, approach and appropriate learning methods, to support the learning process can be applied media as a tool in the learning process. Based on this background, the aim of this research is to see the effectiveness of the using teaching aids with somatic, auditory, visualization and intellectually approaches in learning mathematics".

## **METHODS**

This study uses a quantitative approach with an quantitative research design. Quantitative research is a method for testing theories by examining Creswell's variables (Kusumastuti, et. al., 2020). When the research was carried out from October to March and the place to carry out this research was held at MI Al-Islam Jamsaren Surakarta. The subjects in this study were third grade students at MI Al-Islam Jamsaren. The population in this study was 47 students. Meanwhile, the sample used was saturated sampling in which all population subjects were used as samples (Rosyidah and Fijra, 2021). Data collection technique used in this research is documentation. Data analysis test in this study used descriptive statistical analysis. In the prerequisite test using the normality test with the Kolmogorov-Smirnov formula and the homogeneity test with the Levene test formula. While testing the hypothesis is tested by analysis of paired sample t-test. The test was carried out with the help of the SPSS 15 application for windows.

## **RESULT AND DISCUSSION**

Based on the results of research conducted in class III MI Al-Islam Jamsaren regarding the Effectiveness of Using Teaching Aids with Somatic, Auditory, Visualization, and Intellectually Approaches in Mathematics Learning, the following data is obtained:

Data Analysis Variable learning outcomes before using teaching aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach to daily test scores for mathematics learning from calculating data concentration, standard deviation and scoring to determine very high, high, low, and very low categories.

**Table 1.** Learning outcomes of data prior to use of the SAVI approach

No	Interval Class	Frequency ( <i>f</i> )	<i>D</i>	<i>f.d</i>
1	40-49	2	44,5	89
2	50-59	4	54,5	218
3	60-69	8	64,5	516
4	70-79	18	74,5	1341
5	80-89	9	84,5	760,5
6	90-99	6	94,5	567
		47		3491,5

Source: documentation of learning outcomes

$$\bar{X} = \frac{\sum fd}{\sum f} = \frac{3491,5}{47} = 74,2$$

**Table 2.** Categorization of data prior to use of the SAVI approach

Score Range	Category	Total
$X \geq 86,7$	Very High	8
$86,7 > X \geq 74,2$	Tall	19
$74,2 > X \geq 61,7$	Low	13
$X < 61,7$	Very Low	7

By looking at the table 2. it can be explained that the learning outcomes before using teaching aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach obtained an average score of 74.2 with a very high category of 8 students, a high category of 19 students, a low category of 13 students and a very low category of 7 students.

With the results of these calculations, it can be concluded that before using teaching aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach, it was in the high category. Learning outcomes after using teaching aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach to learning mathematics from calculating data concentration, standard deviation and scoring to determine very high, high, low and very low scores.

**Table 3.** Learning outcomes of data on learning outcomes after using the SAVI approach

No	Interval Class	Frequency (f)	d	f.d
1	40-49	1	44,5	44,5
2	50-59	3	54,5	163,5
3	60-69	2	64,5	129
4	70-79	17	74,5	1266,5
5	80-89	13	84,5	1098,5
6	90-99	11	94,5	1039,5
		47		3741,5

Source: documentation of learning outcomes

$$\bar{X} = \frac{\sum fd}{\sum f} = \frac{3741,5}{47} = 79,6$$

**Table 4.** Categorization of data on learning outcomes after using the SAVI approach

Score Range	Category	Total
$X \geq 89,86$	Very High	11
$89,86 > X \geq 77,6$	Tall	14
$77,6 > X \geq 65,34$	Low	17
$X < 65,34$	Very Low	5

By looking at the table above it can be explained that the value of learning outcomes after the use of teaching aids with the SAVI approach (Somatic, Auditory, Visualization, and Intellectually) obtained learning outcomes with an average of 79.6 with a very high category of 11 students, a high category of 14 students, a low category of 17 students and a very low category of 5 students. With the results of the calculations that have been done, it can be concluded that after the use of teaching aids with the SAVI approach (Somatic, Auditory, Visualization, and Intellectually) it is in the low category.

To see the effectiveness of the Savi model, we first carry out a data normality test. The normality test aims to determine whether or not the distribution is normal in the residual value. The test results can be seen in the following table:

**Tabel 1.** Uji Normalitas

		Unstandardized Residual
		47
Normal Parameters(a,b)	Mean	,0000000
	Std. Deviation	6,99120553
Most Extreme Differences	Absolute	,086
	Positive	,051
	Negative	-,086
Kolmogorov-Smirnov Z		,590

Asymp. Sig. (2-tailed)

,877

Based on the results of the normality test in the table above which was carried out using the One Sample Kolmogorov-Smirnov statistical test, it can be seen that the Asymp value. Sig. (2-tailed) shows a value of 0.877 so it can be concluded that the research variables are normally distributed because the significance is  $> 0.05$ .

Homogeneity test was carried out to find out whether the data has similarities.

**Tabel 6.** Uji Homogenitas

Levene Statistic	df1	df2	Sig.
,000	1	92	,986

Based on the results of the homogeneity test in the table above which was carried out with the Levene test, it can be seen from the sig. Shows a value of 0.986 so it can be concluded that this research variable is homogeneous.

In this research, the analytical test used was paired sample t-test. Analysis of paired sample t-test is an analysis that is used if there are two samples that have a relationship (Rahmi and Bina, 2021)

**Table 7.** Results Analysis Paired sample t-test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	sebelum penggunaan - sesudah penggunaan	-3,915	7,535	1,099	-6,127	-1,703	-3,562	46	,001

Based on the results of data analysis using the paired sample t-test, it is known that the results of the  $t_{table}$  value show  $|t_{count}| = 3.562 > t_{table} = 2.013$ , then  $H_0$  is rejected and the sig. (2-tailed) is  $0.001 < 0.05$ . then  $H_a$  is accepted and  $H_0$  is rejected. This means that the use of visual aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach is effective for use in learning mathematics. The SAVI approach has received a good response from teachers and students and improves students' critical thinking skills (Rasiman, 2016) and can increase students' attention to mathematics (Istiqomah et. al., 2020).

## CONCLUSIONS

Based on the results of the research and discussion above, several conclusions can be drawn as follows: 1) Learning outcomes before using teaching aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach to learning mathematics, showed learning outcomes with an average of 74.2 with a very high category score of 8 students, 19 students in the high category, 13 students in the low category, and 7 students in the very low category. With the following explanation, it can be concluded that the learning outcomes before using visual aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach are in the high category. 2) Learning outcomes after using teaching aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach to learning mathematics, showed an

average result of 79.6 with a very high category score of 11 students, 14 students in the high category, 17 students in the low category and 5 students in the very low category. With the following explanation, it can be concluded that learning outcomes after using visual aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach fall into the low category. 3) Based on the results of data analysis using the paired sample t-test, it is known that the results of the  $t_{table}$  value show  $|t_{count}| = 3.562 > t_{table} = 2.013$ , then  $H_0$  is rejected and the sig. (2-tailed) is  $0.001 < 0.05$ , then  $H_a$  is accepted and  $H_0$  is rejected. There is a significant difference in the use of teaching aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach. In this study, determining the category score did not affect the effectiveness of the approach used, due to an increase in the average learning outcomes before and after the use of visual aids with the SAVI (Somatic, Auditory, Visualization, and Intellectually) approach in learning mathematics. So it can be concluded that the use of teaching aids with the SAVI approach (Somatic, Auditory, Visualization, and Intellectually) is effective for use in learning mathematics.

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