

Effect of the Savi (Somatic, Audio, Visual, Intellectual) Learning Model on Fifth Grade Science Learning Outcomes at SD Negeri 124398 Pematangsiantar

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Abstract

This study is based on the observation of researchers in grade V of UPTD SD Negeri 124398 Pematangsiantar that teachers still use conventional learning models so that students are less involved in the learning process. This causes the learning process to be less than optimal and student learning outcomes do not meet the criteria for achieving learning objectives. From these problems, it is necessary to find solutions, including by implementing the SAVI (Somatic, Audio, Visual, Intellectual) learning model. This learning model can be applied to science subjects because it encourages students to work together and communicate with each other in completing their tasks. This learning model can improve the quality of science learning so that students are more active, creative, and innovative so that learning outcomes improve. This study uses a quantitative method with a Pre-Experiment research type and a One Group Pretest-Posttest research design with a sample of 22 students. Based on the results of the hypothesis test with a significance level of 0.05, the calculated t is 24.159, with a significance level (2-tailed) of 0.000, a probability of significance <0.05 , and a calculated t table of $24.159 > 1.717$, H_0 is rejected and H_1 is accepted. This explanation indicates that the SAVI (Somatic, Audio, Visual, Intellectual) learning model has an effect on the science learning outcomes of fifth-grade students at the UPTD of SD Negeri 124398 Pematangsiantar.

Keywords: SAVI Learning Model, Learning Outcomes, Science learning



INTRODUCTION

Education plays a crucial role in the development of a nation, as it contributes to improving the quality of human resources. A country's progress is often reflected in the quality of its education system. However, the quality of education in Indonesia still faces significant challenges. This is evident from the results of the Programme for International Student Assessment (PISA) 2022, which ranked Indonesia 69th out of 81 participating countries, indicating relatively low performance in key competencies, including science literacy (OECD, 2023). In the era of globalization, education systems are required to continuously adapt to meet the evolving needs of learners. According to Law Number 20 of 2003, education aims to develop students' potential in terms of knowledge, skills, character, and responsibility as citizens. Therefore, the learning process should not only focus on knowledge transfer but also emphasize the development of critical thinking, creativity, and problem-solving skills that are essential for the 21st century.

At the elementary school level, education serves as a foundational stage for developing students' cognitive, affective, and psychomotor abilities (Putri, 2024). One of the important subjects is Ilmu Pengetahuan Alam dan Sosial (IPAS), which aims to foster scientific thinking skills, such as observing, analyzing, and interpreting phenomena in everyday life. IPAS learning is expected to promote higher-order thinking skills, including analysis, evaluation, and synthesis, in line with modern educational demands (Ferdiansyah et al., 2024).

However, in practice, IPAS learning in many elementary schools remains teacher-centered. The learning process is often dominated by lecture methods, limiting student engagement and interaction. Such approaches tend to reduce students' motivation and hinder their ability to understand concepts deeply. As a result, students' learning outcomes are often not optimal. Learning outcomes are key indicators of the success of the teaching and learning process. They reflect changes in students' cognitive, affective, and psychomotor domains after participating in learning activities (Masmuroh, 2016). In addition, learning outcomes also demonstrate students' abilities in critical thinking, problem-solving, and communication (Endrayana & Cholik, 2024). Therefore, improving learning outcomes is essential to achieving educational objectives.

The low quality of science learning outcomes in Indonesia is further supported by PISA 2022 data, which shows that the average science literacy score of Indonesian students is 383, far below the OECD average of 485 (OECD, 2023). This indicates that many students have not yet achieved the minimum level of scientific competence. Such conditions highlight the need for more effective and meaningful learning strategies, especially at the elementary level.





Based on observations at UPTD SD Negeri 124398 Pematangsiantar, similar problems were identified. The learning process is still dominated by conventional teaching methods, with limited use of interactive strategies and learning media. As a result, students experience difficulties in understanding IPAS concepts. This is reflected in students' learning outcomes, where only 36.36% of students achieved the Minimum Learning Mastery Criteria (KKTP), while 63.64% did not meet the required standard.

To address this issue, the implementation of innovative learning models is necessary. One such model is the SAVI (Somatic, Auditory, Visual, Intellectual) learning model, which emphasizes the use of multiple senses in the learning process. SAVI integrates physical activity (somatic), listening and speaking (auditory), visual observation (visual), and intellectual engagement (intellectual) to create meaningful learning experiences (Ngalimun, 2017; Yudiari, 2015). This model encourages active student participation and has the potential to improve both engagement and learning outcomes.

Based on the above considerations, this study aims to examine the effect of the SAVI learning model on the science learning outcomes of fifth-grade students at UPTD SD Negeri 124398 Pematangsiantar. The findings of this study are expected to contribute to the development of effective learning strategies and provide practical insights for teachers in improving the quality of IPAS learning.

RESEARCH METHODS

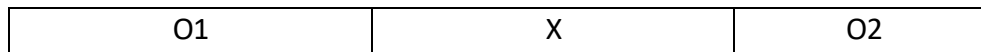
1. Research Design

The research design used in this study was a pre-experimental One Group Pretest-Posttest design, involving only one class as the experimental class and without a comparison group (Arwadi et al., 2023). The aim was to gain an understanding of "The Effect of the SAVI Learning Model on Fifth-Grade Students in Science Learning at the UPTD of SD Negeri 124398 Pematangsiantar."

Pre-experimental research is experimental research with a relationship between independent and dependent variables. One Group Pretest-Posttest is a type of research that compares conditions before and after treatment (Sugiyono, 2019: 72).

The pretest (initial test) was administered before learning using the SAVI learning model, while the posttest (final test) was administered after learning using the SAVI learning model. The design sequence developed in this study can be described as follows:





Source: (Sugiyono 2019:75)

Figure 1. One-Group Pretest-Posttest Design

Description:

O1: Initial Test Score (Pretest)

O2: Final Test Score (Posttest)

X: Treatment using the SAVI Learning Model

2. Research Location and Time

This research was conducted at the UPTD SD Negeri 124398, Jalan Perwira No. 183, Merdeka Village, East Siantar District, Pematang Siantar City, Zip Code 21131, North Sumatra Province. The researcher chose this school as the research site because it faces significant challenges in education, such as the lack of implementation of interactive learning models, resulting in low student learning outcomes, especially in science and science. The research was conducted in the fifth grade students of the UPTD SD Negeri 124398 Pematangsiantar during the even semester of the 2025/2026 academic year.

3. Research Population and Sample

1) Population

According to Sugiyono (2020: 126), a population is a generalized area consisting of objects and subjects with specific quantities and characteristics determined by the researcher to be studied and then conclusions drawn. According to Ummah (2019: 93), this population serves as the source of research data, so the researcher will determine the target population according to the research objectives. The population in this study was all fifth grade students at the UPTD SD Negeri 124398 Pematangsiantar for the 2025/2026 academic year, totaling 22 students.

2) Sample

According to Subhaktiyasa (2024), a sample is a portion of a population selected for analysis with the aim of generalizing the results to the entire population. According to Sugiyono (2016:81), a sample is a portion of the population's total number and characteristics. The sample used in this study was saturated sampling. According to Sugiyono (2016:85), saturated sampling



is a sampling technique where all members of the population are used as samples. This is often done when the population is relatively small, less than 30 people. Therefore, the sample for this study was 22 fifth-grade students of UPTD SDN 1243898 in the academic year 2025/2026.

4. Research Variables

This study uses two variables: the independent variable (X) and the dependent variable (Y). The independent and dependent variables in this study are:

1. Independent Variable (X)

In this study, the independent variable is the SAVI Learning Model (X).

2. Dependent Variable (Y)

In this study, the dependent variable is student learning outcomes (Y).

5) Data Collection Techniques

Data collection is a crucial stage in research. Correct data collection techniques will ensure high levels of trust. Therefore, this stage must be carried out carefully and in accordance with good research procedures. This aligns with Sugiyono's (2013) opinion, which states that strategic steps are necessary in research to obtain accurate phenomena that can be verified. To obtain accurate data, this study utilized several data collection instruments, namely:

1. Tests

Tests are instruments used to collect data or information regarding a person's knowledge and skills. According to Abdullah (2021:67), knowledge tests can be administered in written or oral form to measure a person's level of understanding of a subject. The test technique used in this study aimed to determine the learning outcomes of fifth-grade students at the UPTD SDN 124398 Pematangsiatar on the topic of Harmony in Ecosystems, Topic A: Eating and Being Eaten. The instruments used in research must first be validated. Data can be considered valid if the data collection tool or instrument used is truly valid as a measuring tool. In pretest and posttest trials on students, instrument testing must first be developed, including validity, reliability, discriminatory power, and difficulty levels.

2. Documentation

Documentation is a tool used to provide a clearer picture of the learning situation. Research documentation can take the form of videos, images, and photographs taken during learning using the SAVI learning model, as well as the corrected pretest and posttest answers,

which will be attached.

6. Data Analysis Technique

The data analysis technique used in this study was descriptive statistics. According to Sugiyono (2019:148), descriptive instruments are instruments used to analyze data by describing or illustrating the collected data as it is, without the intention of drawing conclusions or generalizations applicable to the general public. Once the data is collected, it needs to be processed immediately by research staff, particularly those tasked with data processing (Arikunto, 2019: 278). Data analysis is carried out using the following steps:

1) Normality Test

The normality test is a step to determine whether the data is normally distributed or not. If an analysis uses a parametric method, the data must meet the normality requirements. For data that are not normally distributed, a non-parametric statistical test is used, as described by Nuryadi et al. (2017). To test for normality, the Shapiro-Wilk test is used in this study. A significance level of 0.05 or 5% indicates that the data is normally distributed. The normality test criteria are: if Sig < 0.05, the data is considered non-normally distributed; if Sig > 0.05, the data is considered normally distributed (Widana and Muliani, 2020).

2) Hypothesis Testing

To determine a hypothesis test, the data can be assessed for normality using the Shapiro-Wilk test. If the data is normally distributed, the paired sample test is used. If the data is not normally distributed, the Wilcoxon Signed Rank Test is used. According to Widana and Muliani (2020), the Shapiro-Wilk test is used to determine whether the data originates from a normal distribution or not. According to Rudianto (2020), the Wilcoxon test is used to test conditions (variables) in paired samples or for before-and-after research.

t-test Formula:

$$t_{hitung} = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N(N-1)}}}$$

Sumber : (Arikunto 2020: 349-350)

Description:

Md = Mean of the difference between pretest and posttest

X₁ = Learning outcomes before treatment (pretest)





X_2 = Learning outcomes after treatment (posttest)

D = Deviation of each subject

$\sum x^2 d$ = Sum of squared deviations

N = Subjects in the sample

The basis for this decision is based on a comparison of t-count and t-table. As follows:

- a) If t-count > t-table, then H_0 is rejected and H_1 is accepted. This means that there is an effect of using the SAVI Learning Model on the science learning outcomes of fifth-grade students at the UPTD of SD Negeri 124398 Pematangsiantar.
- b) If t-count < t-table, then H_0 is accepted and H_1 is rejected. This means that there is no effect of using the SAVI Learning Model on the science learning outcomes of fifth-grade students at the UPTD of SD Negeri 124398.

RESULTS

Based on the data analysis conducted, the validity of the test instrument was first tested using SPSS 25 on 21 students. The validity test results showed that of the 30 items tested, 25 were valid with a value above 0.465. These items that met the validity criteria were then declared suitable and used as pretest and posttest instruments in the study. After the instrument was declared valid, a reliability test was conducted to ensure the consistency of the instrument, ensuring a Cronbach's Alpha value of 0.944 indicating that the instrument was highly reliable. With this valid and reliable instrument, the study could continue to measure student learning outcomes effectively. Next, a test of the difficulty level of the items was conducted to determine the level of difficulty of the questions used. From the analysis results, 1 question was found to be in the easy category, 17 questions in the medium category, and 7 questions in the difficult category. This distribution indicates a balanced instrument capable of measuring students' overall abilities. Furthermore, the discriminating power test showed that most of the questions had good discriminating power, with 14 items categorized as good, 1 item as fair, and 10 items as very good, indicating the questions' ability to differentiate students with different abilities was good.

Based on the instrument that had passed the test, a pretest was administered to 22 fifth-grade students at the UPTD of SD Negeri 124398 Pematangsiantar before the start of the lesson. The average pretest score was 36, with a Learning Objective Achievement Criteria (KKTP) of 70, while 99.9% of students had not achieved this. These results indicate that students' initial understanding of the Harmony in Ecosystems topic, Topic A: Eating and Being Eaten, was still





relatively low. After implementing the SAVI learning model, a posttest was conducted to measure improvements in learning outcomes. The posttest results showed a significant improvement, with an average score of 84.54, with 99.9% of students achieving or exceeding the KKTP.

To measure learning effectiveness, data normality analysis was performed using pretest and posttest data using SPSS 25. The analysis results showed a normality value for the pretest of $0.841 > 0.05$ and a normality value for the posttest of $0.403 > 0.05$. This indicates that the sig results for the pretest and posttest were greater than 0.05, indicating that the data were normally distributed. Furthermore, the t-test analysis obtained a calculated t value of 24.159 with a significance level of 0.000. Because the probability of significance is much smaller than 0.05, namely 0.000, and $t_{\text{calculated}} > t_{\text{table}}$ ($24.159 > 1.717$), H_0 is rejected and H_1 is accepted. This confirms that the SAVI learning model is highly effective in improving student learning outcomes in the topic of Harmony in Ecosystems, Topic A: Eating and Being Eaten.

Overall, the implementation of the SAVI learning model successfully created an active, innovative, and enjoyable learning environment. This condition allows students to learn optimally, resulting in significant improvements in conceptual understanding and learning outcomes. Thus, the SAVI learning model significantly contributes to improving the quality of science learning in grade V of the UPTD SD Negeri 124398 Pematangsiantar.

DISCUSSION

The findings of this study indicate that the test instrument used was of high quality, as evidenced by the validity and reliability analyses. Out of 30 items, 25 were declared valid, meaning that the instrument was able to accurately measure students' understanding of the science material. Furthermore, the reliability coefficient (Cronbach's Alpha = 0.944) shows a very high level of consistency. This suggests that the instrument produced stable and dependable results, allowing for accurate measurement of students' learning outcomes before and after the implementation of the SAVI learning model. In addition to validity and reliability, the distribution of item difficulty levels demonstrated that the instrument was well-balanced. The majority of questions fell into the medium category, with only a few categorized as easy and difficult. This balance is important because it ensures that the test can assess a wide range of student abilities. Moreover, the discriminating power of the items was generally good to very good, indicating that the instrument was capable of distinguishing between students with higher and lower levels of understanding. Therefore, the overall quality of the instrument supports the credibility of the research findings.





The pretest results revealed that students' initial understanding of the topic "Harmony in Ecosystems: Eating and Being Eaten" was still low. With an average score of 36 and almost all students failing to meet the minimum learning criteria (KKTP), it is evident that students had limited prior knowledge of the material. This condition may be influenced by the use of conventional teaching methods that do not fully engage students in the learning process. As a result, students tend to have difficulty understanding abstract scientific concepts.

After the implementation of the SAVI (Somatic, Auditory, Visual, Intellectual) learning model, there was a substantial improvement in student learning outcomes. The posttest average increased significantly to 84.54, with almost all students achieving the KKTP. This improvement demonstrates that the SAVI model effectively facilitates student learning by involving multiple sensory modalities and active participation. The integration of physical movement (somatic), listening and speaking activities (auditory), visual aids (visual), and critical thinking (intellectual) helps students better understand and retain the material.

The statistical analysis further strengthens these findings. The normality test confirmed that both pretest and posttest data were normally distributed, allowing for the use of parametric testing. The t-test results showed a very high t-value (24.159) with a significance level of 0.000, indicating a statistically significant difference between pretest and posttest scores. This means that the improvement in student learning outcomes was not due to chance, but rather the direct effect of the SAVI learning model.

These results are consistent with constructivist learning theory, which emphasizes that knowledge is actively constructed by learners through experience and interaction. The SAVI model aligns well with this theory by encouraging students to actively engage in the learning process through various sensory experiences. When students are physically, mentally, and emotionally involved, they are more likely to develop a deeper understanding of the material. This explains why the SAVI model was effective in improving students' conceptual understanding of ecosystem relationships.

Overall, the implementation of the SAVI learning model has proven to be highly effective in enhancing science learning outcomes among fifth-grade students. The model not only improves academic achievement but also creates a more engaging and interactive classroom environment. Therefore, it is recommended that teachers consider adopting the SAVI approach in science instruction, particularly for topics that require conceptual understanding. Future research could explore its application in different subjects or educational levels to further validate its effectiveness.



CONCLUSION

Based on the results of the study, it can be concluded that the SAVI (Somatic, Auditory, Visual, Intellectual) learning model has a significant effect on improving the science learning outcomes of fifth-grade students at SD Negeri 124398 Pematangsiantar. This is evidenced by the substantial increase in students' average scores from the pretest to the posttest, as well as the high percentage of students achieving the minimum learning criteria (KKTP) after the implementation of the model.

The statistical analysis further confirms the effectiveness of the SAVI learning model. The results of the t-test indicate a significant difference between students' learning outcomes before and after treatment, demonstrating that the improvement is not due to chance but is a direct result of the applied learning model. In addition, the use of a valid and highly reliable instrument ensures that the findings of this study are accurate and trustworthy.

In conclusion, the SAVI learning model can be considered an effective and innovative approach to science teaching, particularly in enhancing students' conceptual understanding and engagement in learning. Therefore, it is recommended that educators implement this model in classroom practice to create a more active, meaningful, and enjoyable learning experience. Future studies are encouraged to explore the application of this model in other subjects and educational contexts.

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