



# Effectiveness of the Application of SAVI Compared SQ3R Learning Models on Science Learning Outcomes in Elementary School

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**Abstract:** The application of learning models is the factors that influence learning outcomes. This research evaluate how well the SAVI and SQ3R learning models are applied to the scientific learning outcomes of grade IV students at SD Gugus Mensirak in the Belitung Regency. This study uses a single group pretest-posttest model and a pre-experimental research methodology, making it a quantitative study. A sample of 56 students participated in this study: 28 in grade VI of SD Negeri 22 Sijuk who used the SAVI learning model and 28 in grade VI of SD who used the SQ3R learning model. This research used Purposive sampling of the research sample in order to make sure it was appropriate for the study's goals. The results of the computations indicate that the average learning outcomes of students using the SAVI model are 84.14. On the other hand, students' learning outcomes using the SQ3R model average 72.22. The experimental class's n-gain value was 0.65 and the control classes was 0.53, the result is SAVI learning approach outperforms the SQ3R learning model in terms of the science learning outcomes of grade IV students at SD Gugus Mensirak, Belitung Regency, with a 65% increase in student learning outcomes.

**Keywords:** Learning Outcomes of Science; SAVI; SQ3R

## Introduction

Education is the key to the answer to the process of thinking and human experience itself (Situmeang 2021). This is in accordance with Law No. 20 of 2003 concerning the National Education System Article 1 Paragraph 1 which reads: "Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual religious strength, self-control, personality, intelligence, noble morals, and the skills needed by themselves, society, nation and state."

The values of life in it are certainly integrated into the subjects given to students at school (Azizah 2021). Therefore, the role of figures in schools has an important role in this process (Wu, Hwang, and Wei 2025). One of

them is teachers, teachers as competent educators in their fields must have an important commitment in serving their knowledge to students (Hooper and Johnson 2025). As stated by (Rizki, Singodiwongso, and Nugraheny 2021) that teachers must create meaningful learning by optimizing all the competencies they have, so that children continue to be enthusiastic about learning and learning goals can be achieved optimally.

Adapting learning to the new curriculum is a major challenge (Hasibuan et al. 2023). In 2024, education in Indonesia will experience significant changes with the adoption of the 2013 Curriculum and the move towards the Independent Curriculum (Riskiyah, Fariyanti, and Abidin 2024). This transformation requires adjustments by both teachers and schools (Aibekob, Santoso, and Hadiprayitno 2022). In Elementary Schools, for example, the implementation of the Independent Curriculum is

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carried out in stages starting from grades I and IV, grades II and V, then grades III and VI (Angga 2022).

In its implementation in elementary school classes, learning complex science material often encounters obstacles (Aminah and Riska 2018). One of the causes is because the learning style used by the teacher is not in accordance with the intelligence of the students (Purwanto 2023). The incompatibility of the application of the learning model with the learning style of students affects the low interest of students in learning activities (Sayed et al. 2025). According to (Islamiyah, Sulfasyah, and Azis 2023), the low interest of students in learning activities is caused by the incompatibility between the methods, media, and teaching materials used with the learning style of each student. This incompatibility causes students to quickly become bored, tired, and lack interest in learning so that it will also affect student learning outcomes (Aliyah, Kusuma, and Suryanti 2019).

Similar to the problems that occurred at SD Negeri 21 Sijuk and SD Negeri 22 Sijuk, the mid-semester test scores in science subjects had not reached the Learning Objectives Achievement (KKTP). This is due to student boredom in carrying out learning activities in class caused by the Teacher Centered learning model (Ulfa et al. 2022). A learning model where learning is centered on the teacher only (Bhatt, Verbert, and Van Den Noortgate 2025). This is the background for researchers in identifying existing problems, namely related to non-innovative learning models, which cause a decrease in student enthusiasm in learning in class, resulting in low Learning Objectives Achievement (KKTP) scores at the school (Rizki et al. 2025). Based on these problems, the solution that researchers can provide is to apply the SAVI (Somatic, Auditory, Visual and Intellectual) and SQ3R (Survey, Question, Read, Recite and Review) learning models. In this case, to achieve the objectives in learning science, it is important to utilize and apply a learning model that is in accordance with the learning process that supports the learning activities (Gunawan et al. 2023).

SAVI (Somatic, Auditory, Visual, Intellectual) is the theory underlying the SAVI model is the "Accelerated Learning" theory put forward by Dave Meier and Bobbi DePorter, that good learning is learning that involves all aspects of the senses, is enjoyable (liked by students), is student-centered, and can adapt to the way students enter the world. emphasizes that learning should utilize all the senses possessed by students, namely movement (somatic), hearing (auditory), observation (visual), and thinking (intellectual) (Saleh 2022). According to (Shoimin 2013) in (Fitriandari 2022) the steps of the SAVI learning model include the preparation, delivery, training and performance stages.

SQ3R (Survei, Question, Read, Recite, Review) is a good reading method for intensive and rational reading

purposes (Dela Safitri and Suryadi 2024). This reading method was recommended by a professor of psychology from Ohio State University, Prof. Francis P. in 1941 (Roviin and Hafidz 2024). According to (Amikratunnisyah and Fatonah 2023) the SQ3R learning method is used as an alternative to improve students' reading comprehension skills, besides the application of this method is considered capable of maintaining students' understanding for a longer period of time. According to (Subekti and Mendrofa 2024) the SQ3R learning model is a model consisting of five stages in learning, namely survey, question, read, recite, review.

Based on research (Gunantara, Suarjana, and Riastini 2014), it explains that "learning outcomes are a learning activity in students that is carried out through tests. Learning outcomes are usually satisfactory or unsatisfactory depending on perseverance, ability and persistence to achieve high scores." This opinion means that learning outcomes are a form of behavioral change that occurs after someone does learning activities. There are similarities regarding the analysis of the definition of learning outcomes, namely they contain the same meaning, learning outcomes are the results achieved by students after experiencing a learning process for a certain period of time, there are changes in themselves (Liu et al. 2024), These changes include in terms of their thinking ability, skills, or attitudes (Cortes et al. 2025). Based on the opinions above, it can be concluded that learning outcomes are the result of changes that occur in students both in terms of cognitive, psychomotor, and affective (Setiawati, Ramdani, and Khairuddin 2023).

According to (Mirfan 2020) in his research he stated that Science subjects are subjects that aim to develop attitudes, knowledge, and skills for students. In the independent curriculum, science subjects are adjusted to the needs of students and improvements to learning outcomes that refer to spiritual aspects, attitudes, knowledge, and skills (Indriyani N, Rahmi, and Yanti 2023).

The Natural and Social Sciences (IPAS) subject in Elementary School covers various important aspects in daily life, one of which is the material on the transformation of changes in energy forms. This material is discussed in depth in Chapter IV of the IPAS textbook Merdeka Curriculum for grade 4, which explains how energy can change from one form to another and its application in daily life.

In this case, the researcher chose material on the form of energy changes to be used in the study because this material covers the implications of understanding and examples of forms of energy changes that are widely applied in everyday life. This material was chosen by the researcher to improve the understanding of students who lack understanding of the material on the transformation of changes in the form of energy.

Additionally, the study by (Kusmayuda, Sudiana, and Widiana 2013), The Effect of SAVI Learning Model Oriented to Science Process Skills on Science Learning Outcomes of Grade V Students of Elementary School Cluster V, Tejakula District, is an example of a type of prior research that is comparable to and related to the researcher's work. According to this study, grade V students at Elementary School Cluster V in the Tejakula District can achieve better scientific learning results by using the SAVI learning model, which is focused toward PAKEM.

In addition, there is previous research related to the SQ3R learning model, namely, research conducted by (Sobon, Sigarlaki, and Supit 2023) entitled "Improving Reading Comprehension Skills through the SQ3R Learning Method for Grade IV Students of SD GMIM 12 Manado" It can be concluded that the use of the SQ3R learning approach significantly improves the reading comprehension skills of grade IV students at SD GMIM 12 Manado, based on the results of the research analysis.

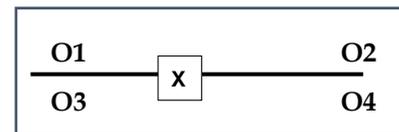
This study offers a new approach in comparing the effectiveness of the SAVI and SQ3R learning models in improving science learning outcomes in elementary schools, which have previously been studied separately. This novelty is important because both models have different advantages: SAVI emphasizes the involvement of all students' senses and activities, while SQ3R emphasizes in-depth reading comprehension skills. Thus, this study not only provides an overview of which learning model is more appropriate for improving understanding of science concepts, especially energy transformation, but also makes a real contribution to the development of innovative learning strategies relevant to the demands of the Independent Curriculum. The urgency of this study lies in the need to address students' low interest and learning outcomes in science, while also providing practical recommendations for teachers to be able to select and implement effective learning models according to student characteristics.

Based on the background above, the author is interested in conducting observations and research on "The Effectiveness of Applying SAVI and SQ3R Learning Models in Science Subjects for Grade IV Gugus Mensirak, Belitung Regency" which is motivated by the lack of student interest in learning science due to less interesting and effective learning, where this is related to less than optimal science learning outcomes. This research was conducted at SD Negeri 21 Sijuk and SD Negeri 22 Sijuk Gugus Mensirak, Belitung Regency.

**Method**

The research method is a way used to discuss and research the problems that occur (Dewi M, Subagia, and

Redhana 2023). The approach used in this study is quantitative. The determination of the method used by researchers in this study is the experimental research method. The type of experiment used by researchers is the quasi-experimental design method using two classes, namely the experimental class and the control class (Zain, Affandi, and Oktaviyanti 2022). The SAVI learning model was used as the treatment for the experimental group, and the SQ3R learning model was used for the control group. Students' learning outcomes from the two classes will be compared. A pretest and posttest for the experimental class and the control class were administered to each class during implementation. (Novitri et al. 2022). The test instruments used consisted of multiple-choice questions and essays designed to measure students' understanding before and after treatment. The validity of the instrument was tested by involving material experts and methodology experts to evaluate the feasibility of the instrument in measuring student learning outcomes and the suitability of the instrument to the research objectives. While its reliability is tested using the Cronbach's Alpha coefficient to ensure that the question items used in the test actually measure the same aspects of the variable. The detailed research design is presented in following Figure 1.



**Figure 1.** Research Design

Information :

$O_1$  = Pretest score of experimental class

$O_2$  = Posttest scores of experimental class

$O_3$  = Pretest value of control class

$O_4$  = Posttest score of control class

$X$  = The treatment used learning style differentiation learning through the SAVI and SQ3R learning models.

Then the test scores were analyzed by comparing the results of the pre-test and post-test to assess the increase in student understanding after the application of the learning method. The test used to determine the magnitude of the increase and effectiveness used Formula 1:

$$N - gain = \frac{SkorPosttest - SkorPretest}{korMaksimal - SkorPretest} \tag{1}$$

The N-gain results obtained are then interpreted to determine the category of the N-gain percentage. Here is a table of the N-gain category percentages:

**Table 1.** N-gain category percentage

Percentage%	Category
$N\text{-gain} \geq 0.70$	Tall
$0.30 < N\text{-gain} < 0.70$	Currently
$N\text{-gain} \leq 0.30$	Low

The interpretation of the N-gain % is then ascertained by converting the obtained N-gain values into percentages. The N-gain efficacy percentage is shown in the table below:

**Table 2.** N-gain Effectiveness Percentage

Percentage%	Category
< 40	Ineffective
40 - 55	Less effective
56 - 75	Quite effective
> 76	Effective

Furthermore, non-test techniques were carried out using observation, interviews and questionnaires (Imelda Nur Aryanti and Rusnilawati 2022). Observations focused on the involvement and active participation of students during the learning process. Interviews were conducted with grade 4 teachers of SD 21 and SD 22 Sijuk to dig deeper into their experiences with the learning methods applied, including the effectiveness and obstacles faced. Questions in the interviews covered their experiences in implementing the SAVI and SQ3R learning models, their perceptions of the influence of learning models on student learning outcomes, challenges and successes they experienced during the implementation of the model. The questionnaire used was in the form of a Likert scale and was designed to measure students' learning motivation and attitudes towards the learning model applied (Ndoa and Jumadi 2022).

Data obtained from observations and interviews were analyzed descriptively to deeply understand students' perceptions, attitudes, and experiences in participating in learning using the SAVI and SQ3R learning models. Qualitative data will be analyzed using thematic analysis techniques, namely identifying the main themes that emerge from interviews and observations, which are then used to enrich the results of quantitative analysis and provide further context regarding student learning outcomes. Meanwhile, data from the questionnaire were analyzed quantitatively to determine the level of student motivation and attitudes.

In this study, the researcher divided the sample into two groups, namely the experimental group and the control group. The sample in this study was 28 fourth-grade students of SD 21 Sijuk as the control group and 28 fourth-grade students of SD 22 Sijuk as the experimental group. Sample selection was carried out using purposive sampling techniques to ensure

suitability with the research objectives. Ethical considerations in this study include obtaining permission from the school and parents of students, as well as ensuring the confidentiality of respondent data.

Then for the respondent criteria consists of inclusion and exclusion criteria. Inclusion criteria include students aged around 9-10 years who are studying in elementary school and actively participating in the learning process and students who give permission to participate. While the exclusion criteria are students aged less than 9-10 years and more than 9-10 years, students who are not active in the learning process and students who are not given permission to participate so that they cannot follow the entire series of research.

## Result and Discussion

Based on the research that has been conducted on the effectiveness of the application of the SAVI and SQ3R learning models on the science learning outcomes of grade IV students of SD Gugus Mensirak, Belitung Regency. There are several things that will be discussed by the researcher, such as the following:

### Data analysis

The following findings were derived from the processing of pretest and posttest data for the experimental class and control class, which had 56 respondents:

**Table 3.** Pretest and Posttest Data

Information	N	Min	Max	Mean
PreEks	28	52	96	72.14
PostEks	28	68	100	88.57
PreKon	28	48	92	72.86
PostKon	28	64	96	87.43
Valid N	28			

As can be seen in the following table, students' learning outcomes are calculated from the pretest to the posttest. The experimental class received an average score of 72.14 on the pretest and 88.57 on the posttest. The control pretest had an average score of 72.86, whereas the control posttest had an average score of 87.43.

### Normality Test

To ascertain whether or not the distribution of research data is normal, a normality test is performed. The outcomes of the normalcy test for the experimental and control classes are as follows (Table 4).

**Table 4.** Normality Test Results Table

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PreEks	.132	28	.200	.974	28	.679
PostEks	.152	28	.095	.937	28	.095
PreKon	.143	28	.150	.947	28	.163
PostKon	.148	28	.117	.942	28	.123

As can be seen from the above table, the experimental class's and the control class's pretest and posttest significance values were both more than 0.05,

**Table 5.** Independent Sample t Test Results Table

		F	Sig.	t	df	Sig. (2-tailed)
Control Class	Equal Variances Assumed	5.3688	.024	-4.690	54	.001
Experimental Class	Equal Variances Assumed	1.138	.291	-6.251	54	.001

The experimental class and the control class have a significant value (2-tailed) of 0.001, according to the preceding table. Therefore, it can be said that there is a difference in the impact of using the SAVI and SQ3R learning models on the science learning outcomes of grade IV students at SD Gugus Mensirak, Belitung Regency, as the significance value (2-tailed) of the experimental class and the control class is 0.001 < 0.05, and  $H_0$  is rejected.

The degree to which the students' learning outcomes have improved can then be ascertained by comparing the experimental class's and the control class's average scores on the pretest and posttest. The average values attained by pupils are as follows:

**Table 6.** Average Student Score Results

	N	Min	Max	Mean
PreEks	28	52	96	72,14
PostEks	28	68	100	88,57
PreKon	28	48	92	72,86
PostKon	28	64	96	87,43
Valid N	28			

The experimental class's average posttest score, as seen in the above table, is 88,57. In contrast, the control class's average posttest score is 87,43. This shows that the learning outcomes using the SAVI learning model in science learning for grade IV are higher than the learning outcomes of the control class using the SQ3R learning model.

*Homogeneity Test*

To ascertain whether or not the values of the experimental class posttest data and the control class posttest data are homogeneous, a homogeneity test is performed. The outcomes of the homogeneity test are as follows:

indicating that the study's data were normally distributed.

*Independent Sample t Test*

The independent sample t test was conducted to determine whether the application of the SAVI and SQ3R learning models had a significant effect on the science learning outcomes of grade IV students of SD Gugus Mensirak, Belitung Regency. The following are the results of the paired sample t test:

**Table 7.** Homogeneity Test Results

Learning Outcome	Levene Statistic	df1	df2	Sig.	
Based on Mean	Posttest	.021	1	54	.886

According to the above table, the experimental class's and the control class's Mean Posttest significance values are 0.886 > 0.05. Therefore, it can be said that the experimental class's posttest variance and the control class's posttest variance are homogeneous.

*N-Gain Test*

In experimental and control group research, the N-gain test is used to assess how well a methodology work. The N-gain test yielded the following findings:

**Table 8.** Results of the N-Gain Test

Data	Eksperimental class	Control class
N-Gain	0,63	0,53
N-Gain (%)	63%	53%
Category	Currently	Currently
Interpretation of effectiveness	Quite effective	Less effective

According to the experimental class's N-Gain pretest and posttest findings, the value was 0.63 and could be interpreted pretty effectively. Then, with a less useful interpretation, the N-Gain control class's outcomes received a value of 0.53. Therefore, with a 65% improvement in student learning results, the SAVI learning model outperforms the SQ3R learning model in terms of the science learning outcomes of grade IV students at SD Gugus Mensirak, Belitung Regency. The increase in science learning outcomes in both the control

and experimental classes from the pretest to the posttest is depicted in the bar chart below (Figure 2).

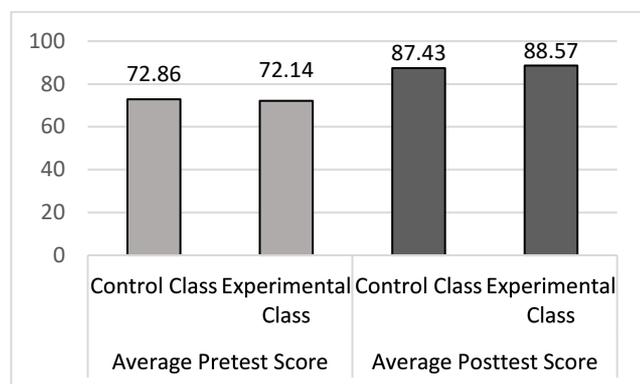


Figure 1. Learning Outcome Improvement Diagram

## Conclusion

Based on the research results, it can be concluded that the implementation of the SAVI learning model is more effective than the SQ3R model in improving science learning outcomes of fourth-grade students at Gugus Mensirak Elementary School, Belitung Regency. This is evidenced by the higher average posttest score and n-gain value in the experimental class using SAVI (88.57; 0.63) compared to the control class using SQ3R (87.43; 0.53). This finding indicates that a learning model involving somatic, auditory, visual, and intellectual aspects is able to improve science learning outcomes more optimally compared to an intensive reading-based model. In general, the research results show that a multisensory and participatory approach is more relevant to support science learning in elementary schools. The practical implication of this research is the need for teachers to integrate the SAVI model in science learning to increase motivation, active involvement, and conceptual understanding of students, while also providing recommendations for schools and policymakers in improving the quality of science learning at the elementary school level.

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## Author Contributions

This article is published based on a collaboration between the first author, S. N., who plays a role in determining the research idea; creating learning tools; conducting research; analyzing research data; and writing the original draft of the article. The second author, S. S. A. overseas guiding; supervising; and validating the instruments used. The results of this article have been reviewed and approved by all authors.

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## Conflicts of Interest

The author declares no conflict of interest.

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