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The Effect of the SAVI Learning Model on The Cognitive Learning Outcome of Students

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ABSTRACT

Purpose – The cognitive learning outcomes of pupils are essential for assessing student progress and the quality of the implemented learning procedure. Nevertheless, the cognitive learning outcomes of students have not met expectations. This study aimed to assess the cognitive learning outcomes level of fourth-grade elementary pupils and the effect of the SAVI model on enhancing these cognitive learning outcomes.

Methodology – The study method was quantitative, utilizing a quasi-experimental posttest-only control group design. The study's sample comprised 56 fourth-grade elementary school students. The selected data gathering method was a test. The assessment is structured as multiple-choice questions. This study utilized parametric statistical analysis to test hypotheses through the t-test. This study's research approach commences with planning, which includes identifying research subjects, conducting a literature review, acquiring research permits, and creating research instruments. In the implementation phase, the researcher delineates the experimental and control groups. Furthermore, after conducting several experiments, the researcher administered a post-test to the experimental and control groups. Following data collection, the researcher analyzed the defined problem and the established research objectives.

Findings – This investigation indicated that most cognitive learning outcomes of pupils instructed through the SAVI learning model fell within the good category, and there was a significant disparity in cognitive learning outcomes between pupils instructed using the SAVI model and those receiving conventional instruction.

Contribution – This study's results enhance students' cognitive learning outcomes.

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INTRODUCTION

Learning outcomes differ across various domains, including cognitive academic success, attitudes, motivation, and high-level thinking skills (Wahono et al., 2020). Cognitive learning outcomes are knowledge-based learning outcomes that students must have (D. G. Lestari & Irawati, 2020). These learning outcomes are the competencies that students possess after completing their learning experiences (Harefa et al., 2023). If the absorption of information increases during the learning process, the learning outcomes will also increase (Cendana et al., 2022). Cognitive learning outcomes can be used to evaluate pupils' effectiveness in learning over time (Nabillah & Abadi, 2019). As the reasons, every pupil should achieve good learning outcomes.

However, cognitive learning outcomes among Indonesian pupils remain low (Fakhrudin & Kuswidyanarko, 2020). According to 2022 PISA data, Indonesia is rated 72nd out of 79 nations by the Organisation for Economic Cooperation and Development (OECD, 2023). The average mathematics, literacy, and science scores declined from 2018 to 2022. Students in Indonesia performed below the OECD average. These findings suggest that Indonesian pupils' learning outcomes remain low. Previous research has also found that elementary school pupils' learning outcomes in science courses remain low (Agusti & Aslam, 2022; Suparman et al., 2020; Utami, 2020). Thus, based on the facts given, student learning results remain poor.

Based on the results of documentation and observation in the research area, it was discovered that the literacy and numeracy report cards of students in Wonogiri Regency, Central Java, remained low, indicating that elementary school students' learning outcomes are relatively low. According to the learning outcomes of students in the cognitive portion of class IV SDN 1 Gondang in the field of Social Sciences, out of 36 students who took the evaluation, the average class score was 58.89, which falls into the "low" category. The learning outcomes of class IV students at SDN 2 Purwantoro in the Natural and Social Sciences field revealed that out of 36 students who did the assessment, the average class score was 58.75, which falls into the "low" category. Furthermore, based on the findings of the Wonogiri Regency Numeracy Literacy Report as the research site, elementary school pupils' numeracy literacy skills remain relatively low (BBPMP Jawa Tengah, 2022). Based on the results of the preliminary study above, students' cognitive learning outcomes at the research location were not as expected.

Low student learning outcomes can be attributed to the learning model adopted (Nabillah & Abadi, 2019). Elementary schools generally adopt traditional learning strategies that give pupils verbal knowledge and assignments (Noviyanti et al., 2023). The application of conventional learning impacts pupils' science abilities, which remain low (Rosiyani et al., 2024). This leads to passive teacher-centered learning and learning, as well as one-way communication (Yudhanegara et al., 2019). So, students' learning results remain poor because the tactics and models employed are still conventional..

Based on the problems above, the researcher offers a solution using the SAVI learning model. The SAVI (Somatic, Auditory, Visual, and Intellectual) learning model can help pupils learn better (Lestari, 2020). Other research suggests that the SAVI model can enhance cognitive results (Serevina et al., 2023; Wahyuni et al., 2022). The SAVI learning model stands for Somatic, Auditory, Visual, and Intellectual (Mahendra et al., 2019). The SAVI learning model underscores the necessity for learning activities to engage all students' senses (Cemara & Sudana, 2019).

The SAVI learning model is an educational framework within the Accelerated Learning Model, characterized by a rapid and organic approach to learning. It encompasses four modalities: Somatic, which involves learning through movement and action; Auditory, which pertains to learning through verbal communication and listening; Visual, which focuses on learning through observation and sight; and Intellectual, which emphasizes learning through problem-solving and reflection (Rahayu et al., 2019). The SAVI learning model entails acquiring knowledge through physical movements and hands-on activities, where learning is perceived as 'experiencing' and 'doing' to enhance analytical skills in problem-solving (Fitriani et al., 2023).

The SAVI learning possesses numerous advantages. These advantages encompass the stimulation of students' integrated intelligence, the facilitation of self-directed knowledge construction, the promotion of

collaboration as more capable students assist their peers, the creation of a more engaging and efficient environment for learning, the enhancement of creativity, and the improvement of students' psychomotor skills (Apsoh et al., 2023). Moreover, an additional benefit of the SAVI learning model is its integration of physical movement with cognitive engagement and the utilization of all sensory modalities in the learning process. This SAVI learning model enables students to amalgamate theoretical information with practical application to optimize their knowledge, abilities, and attitudes (Wijayama, 2019).

Based on these issues, this research is critical for improving primary school pupils' cognitive learning results. Learning outcomes are required to ascertain the success of learning and whether pupils' learning abilities are satisfactory (Rijal & Bachtiar, 2015). Furthermore, learning outcomes are essential for evaluating the effect of pupil learning and assessing the quality of education (Lin et al., 2017). As a result, if student learning results are high, so is the quality of learning provided by instructors, and vice versa. Low learning results will influence low motivation to study, as seen by many students' sleepiness and lack of excitement (Hakim et al., 2023). Furthermore, this study is critical for improving the quality of teacher-student learning (Purnamasari et al., 2020). As a result, this research is critical for improving students' cognitive learning outcomes and the quality of learning, particularly learning models, both at the research site and in comparable future studies.

Prior research on this subject encompasses the effectiveness of the SAVI learning model in enhancing students' metacognition and critical thinking skills (Hasan et al., 2023). According to the study's results, the SAVI model improves metacognitive and critical skills, with N-Gain values of 51.58% and 62.41%. Secondly, investigate the impact of the SAVI model on students' 21st-century competencies (4C) (Natsir et al., 2023). The research has shown that the SAVI model surpasses traditional approaches in enhancing learning outcomes for 21st-century capabilities. Both studies were conducted at the secondary education level. Third, an investigation on the SAVI model's effectiveness in enhancing students' biology learning results (Wahyuni et al., 2022). The research employed a meta-analytic approach. This study analyzes the impact of multimedia on the SAVI learning model and its effectiveness in enhancing science knowledge competency (Dewi & Negara, 2020). The study's results indicated that students instructed through multimedia and the SAVI model demonstrated superior science knowledge competency compared to those receiving conventional instruction, as evidenced by a significant contrast in mean learning scores. Fifth, a study examines the impact of the SAVI learning model on enhancing student comprehension (Sohim et al., 2023). The study indicated that pupils' comprehension utilizing the SAVI learning model fell within the good category, and it demonstrated a moderate influence of the SAVI learning model on enhancing pupils' understanding, as evidenced by the N-Gain test results.

This research differs from prior studies. The study presented above has not directly addressed the effectiveness of the SAVI model in increasing students' cognitive learning results. This study was performed at the elementary school level. It used quantitative methodologies to assess the impact of the SAVI model on enhancing the cognitive learning outcomes of fourth-grade pupils. Moreover, the primary school in Purwantoro District, where this study was done, has not been examined before with the SAVI learning model. The SAVI learning model fosters an enhanced and engaging educational atmosphere, stimulates creativity, improves students' psychomotor skills, maximizes concentration, employs a flexible and diverse model, and cultivates a good environment (Umayah et al., 2020). Consequently, the focus of learning will be on students rather than professors.

This research aimed to assess the cognitive learning outcomes of fourth-grade elementary pupils and the effect of the SAVI model on enhancing these outcomes. This study examines the application of the SAVI model in enhancing students' cognitive learning outcomes. The study's results may enhance learning outcomes and serve as a remedy for educators addressing inadequate cognitive performance. Furthermore, this research can help to establish multimodal models at the elementary school level, allowing pupils to have direct learning experiences that include physical activity, conversation, and the use of visual media.

METHODOLOGY

Research Design

This study employed a quantitative research method. The employed study methodology is Quasi-Experimental, utilizing a posttest-only control group design. This research design involved two groups: the experimental group, which received treatment, and the control group, which did not. Subsequently, both groups underwent a post-test (Wahyuningtyas & Zulherman, 2022). The background of using this research design is that the design is easy to apply, and the population in the Purwantoro area of Wonogiri Regency is spread out and large in number. The weakness of this design is that it is challenging to determine other influencing factors because there is no pre-test.

Participant

The study was conducted at SDN 1 Joho and SDN 2 Purwantoro, in the Purwantoro District of Wonogiri Regency. The execution of this research occurred between January and February 2025. The participants in this study consisted of all grade IV elementary school pupils from Purwantoro District, Wonogiri Regency. This study employed cluster random sampling for its data collection. In cluster randomization, groups of students are assigned to test and control groups according to the characteristics of each group (Dreyhaupt et al., 2017). Groups of public and private elementary schools characterize the research subjects. According to the sampling technique, the first step is identifying the region's population, namely, phase B pupils from grade IV primary schools in Purwantoro District, Wonogiri Regency. Next, a random sample region from the population will be selected—random sampling yields grade IV pupils from SDN 2 Purwantoro and SDN 1 Joho, respectively. The study sample consisted of 56 pupils, including 36 fourth-grade pupils from SDN 2 Purwantoro (experimental group) and 20 fourth-grade students from SDN 1 Joho (control group). The number of pupils in the control and experimental groups is not equal because it reflects the actual number of students at the school.

Data Collection

The methodology employed for data gathering in this study was a test. The assessment was employed to gather data on cognitive learning outcomes. This study utilized the learning outcome test indicators of Analyzing (C4), Evaluating (C5), and Creating (C6) (Oktaviana & Prihatin, 2018). The subjects utilized for the examination were natural and social sciences (*IPAS*). This test has demonstrated validity and reliability. The test's validity is established through content validity, employing expert opinion, and has undergone testing. The validity test findings indicated that each item tested using Pearson correlation was valid, with a significance level of <0.05. The reliability outcomes of each test item, assessed via Cronbach's Alpha, indicated dependable results as they were above 0.7.

Instrument

The instrument used in this investigation was a test. The assessment employed was structured as multiple-choice questions. A total of 25 test items were utilized, comprising 11 questions related to the Analyzing (C4) indicator, nine questions for Evaluating (C5), and five questions for Creating (C6). The indicators of the SAVI learning model utilized in this research experiment were derived from (Ngalimun, 2017) and comprised four components: Somatic, Auditory, Visualization, and Intellectual. Somatic pertains to learning through physical movement and active engagement. Auditory learning involves receiving and understanding through speaking and listening. Visualization involves the collection of understanding through observation and description. The concept of intellectual engagement pertains to the processes of problem-solving and reflection in the context of learning.

Data Analysis

This study employs parametric statistical data analysis utilizing the SPSS 25 software. The phases of this statistical test involve performing descriptive statistical analyses, prerequisite assessments, and hypothesis evaluations. The data description test is employed to characterize the data derived from post-test results, encompassing the mean, median, and mode (Sugiyono, 2023). This study used descriptive analysis to compute the mean, median, mode, lowest and maximum values, and standard deviation, and classified students' cognitive learning outcomes into four categories: excellent, good, sufficient, and lacking (Abdullah et al., 2020). The precondition assessments conducted in this study are tests for normalcy and homogeneity. This study used the independent samples t-test for hypothesis testing.

The research approach implemented in this study begins with planning, which involves identifying research subjects, doing a literature review, obtaining research licenses, and developing research instruments. During the implementation phase, the researcher identifies the experimental and control groups. This was followed by administering treatment in the experimental group using the SAVI learning model. Moreover, following the execution of multiple experiments, the researcher administered a post-test to the experimental and control groups. After data collection, the researcher analyzed the formulated problem and the pre-established research objectives.

FINDINGS

Level of Cognitive Learning Outcomes of Students

Following the data collection and analysis, the subsequent research findings were obtained:

Table 1. Cognitive Learning Outcome Data in the Control and Experimental Groups

Data	Amount of data	Min	Max	Mean	Median	Mode	Standard Deviation
Post-test Control Group	20	44	84	70,6	74	80	11,70
Post-test Experimental Group	36	60	96	78,11	80	80	8,578

Based on Table 1, the mean value of cognitive learning result of students in the control class was 70.6, while in the experimental class, learning using the SAVI learning model, it was 78.11. The minimum value in the control group was 44, and the maximum was 84. The minimum cognitive learning result in the experimental group was 60, and the maximum was 96. So, overall, the value of cognitive learning results was greater in the experimental group.

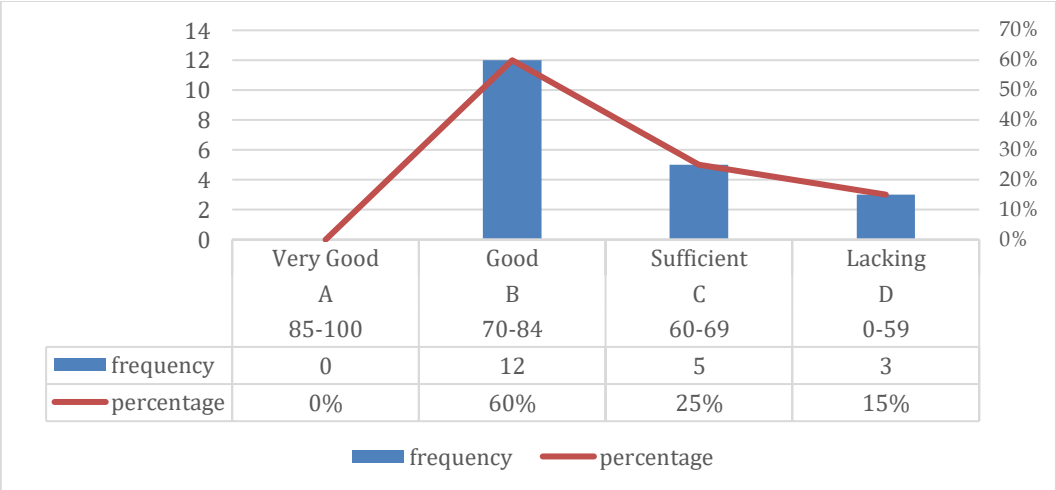

Figure 1. Categorization of Cognitive Learning Outcomes in the Control Class

The difference in cognitive learning results between the control and experimental courses may be attributed to the experimental class's usage of the SAVI learning model. During the control class, just the usual learning model was used. The SAVI learning model can increase cognitive learning results by integrating and using four parts of the senses in learning: body (S), hearing (A), vision (V), and thinking (I). Furthermore, the SAVI learning model encourages active participation by mixing physical and intellectual activities, resulting in improved student learning results. The level of cognitive learning result of pupils in the control group in Figure 1.

Based on Figure 1, the cognitive learning outcomes of pupils in the control class or group are mainly at a reasonable level, with a percentage of 60% or 12 students. Cognitive learning results in the sufficient category of 25% or five students. Then, in the lowest category, there are three students, or 15%. This classification of cognitive learning outcomes is adopted from (Abdullah et al., 2020). If the value of student learning outcomes is 85-100, it is included as very good. It is good if the value is in the 70-84 category. However, if 60-69 is included in the sufficient category and the range of 0-59, it is included in the less category. Analyzing outcomes, results are summarized below, pupils' data on the mastery of each cognitive learning outcome indicator are presented in Figure 2.

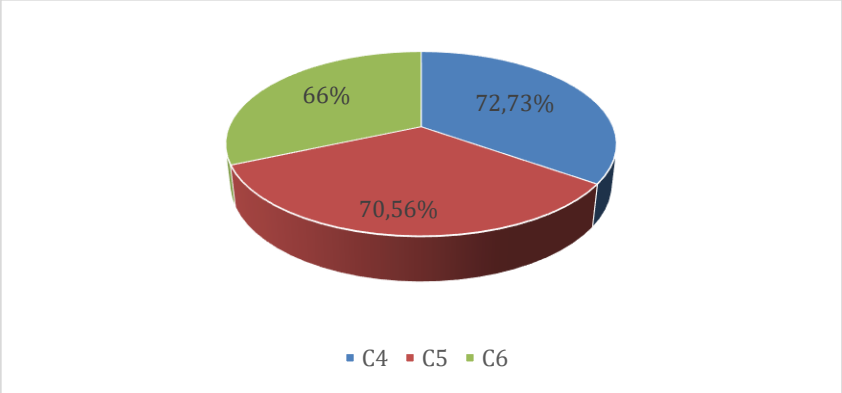

Figure 2. Percentage of mastery of Cognitive Learning Outcomes for each indicator in the Control Class

Based on Figure 2, the most excellent mastery of pupils in the cognitive learning outcome indicator of the control group is C4 (Analysis) with a percentage of 72.73%. Then, on indicator C5 (Evaluation), it is 70.56%. Furthermore, the indicator that students least master is indicator C6 (Creating), with a percentage of 66%. Furthermore, the level or category of cognitive learning outcomes of students in the experimental group taught using the SAVI learning model is presented in Figure 3.

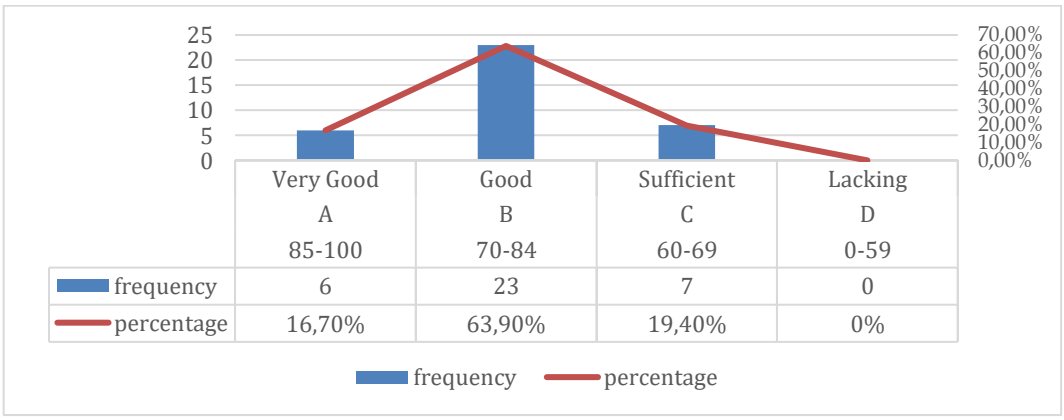

Figure 3. Categorization of Cognitive Learning Outcomes in the SAVI Learning Model Experimental Class

Based on Figure 3, most cognitive learning results of pupils taught using the SAVI learning model are in the good category, with a percentage of 63.9% or 23 students. The outstanding category has six students, or 16.7%. Then, at a sufficient level of 19.4% or seven students. In this experimental class, no students had poor cognitive learning outcomes. The following is the percentage of student mastery of the cognitive learning outcome indicators in Figure 4:

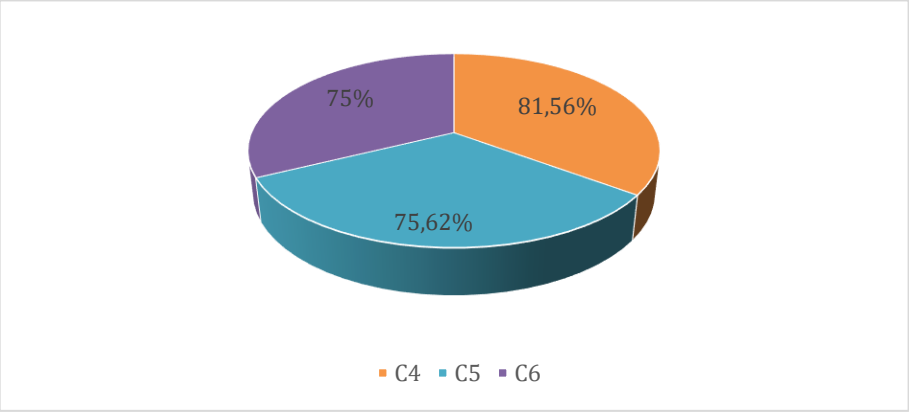

Figure 4. Percentage of mastery of Cognitive Learning Outcomes for each indicator in the SAVI Learning Model Experimental Class

Based on Figure 4, the mastery of cognitive learning outcome indicators of students in the experimental class is most excellent in indicator C4 (Analysis) at 81.56%. Then, in indicator C5 (Evaluation), it was at 75.62%. The indicator with the lowest mastery is indicator C6 (Creating) at 75%.

The Influence of the SAVI Model in Improving Students' Cognitive Learning Outcomes

After the descriptive statistical data is presented, the next step is to conduct a prerequisite analysis test before testing the hypothesis. The prerequisite analysis test consists of normality and homogeneity tests. The data normality test used is the Kolmogorov-Smirnov normality test. This study uses the SPSS 25 application to calculate the normality test of two-variable data. Data is said to be normal if the significance value is Asymp. Sig (2-tailed) > 0.05. Below are the findings of the normality test on the control and experimental groups in this study in Table 2.

Table 2. Data Normality Test Results

No.	Groups	Asymp. Sig. Value (2-tailed)	Note
1	Control Class	0,098	Normal
2	Experimental Class in the SAVI Learning Model	0,200	Normal

Based on Table 2 above, all research data obtained are normally distributed because of the Asymp. Sig. (2-tailed) The value is larger than 0.05. After the normality test, the following prerequisite test is homogeneity. The homogeneity test uses the Levene test with the help of the SPSS 25 application. Decision-making regarding the homogeneity test results is that if the significance value, or Sig> 0.05, then it can be concluded that the variance of two or more groups comes from the same population. The following results of the homogeneity test are presented in Table 3 below:

Table 3. Data Homogeneity Test Results

		Levene Statistic	df1	df2	Sig.
Cognitive Outcome Learning: SAVI Learning Model	Based on the Mean	3,402	1	54	0,071
	Based on the Median	2,257	1	54	0,139
	Based on the median and with adjusted df	2,257	1	49,06	0,139
	Based on the trimmed mean	2,924	1	54	0,093

Table 3 shows the homogeneity test data processing results, the Asymp. Sig. (2-tailed) Based on the Mean value being more than 0.05, namely 0.071, the learning outcome data in the experimental group using the SAVI learning model and the control group come from the same population (homogeneous) or there is no heteroscedasticity. Based on the analysis of the prerequisite test, it can be concluded that students' cognitive learning outcome data have been met. Next is the hypothesis test.

This research used the independent samples t-test for hypothesis testing. In t-test decision-making, if the significance (2-tailed) is less than 0.05, then the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted, indicating a difference in learning outcomes between the experimental group and the control group. The following results of the independent sample t-test are presented in Table 4 below:

Table 4. Data Independent Sample T-test Results

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Cognitive Outcome Learning: SAVI Learning Model	Equal variances assumed	3,402	0,071	-2,751	54	0,008	-7,511	2,731	-12,985	-2,037
	Equal variances not assumed.			-2,519	30,564	0,017	-7,511	2,981	-13,595	-1,427

Based on the findings of the t-test, the sig. (2-tailed) the value is 0.008 <0.05, meaning there is a significant difference among the learning outcomes of learners taught in the experimental class utilizing the SAVI learning model and the control class.

DISCUSSION

The study's results indicate that most cognitive learning outcomes of pupils instructed by the SAVI learning model fall into the good category, with a mean value of 78.11. This exceeds the mean value of 70.6 attained by students not instructed in using the model. The results of this investigation align with other research indicating that the learning outcomes of pupils utilizing the SAVI model fall under the commendable category (Nainggolan et al., 2021). The research sample differentiates it from prior studies. This study utilized a sample of grade IV elementary school kids, whereas the prior study employed grade V primary school students.

Students taught using SAVI had superior cognitive learning outcomes compared to traditional learning methods because SAVI emphasizes active student participation by mixing physical and intellectual activities. The SAVI learning model uses the five senses to seek alternative knowledge from diverse sources (Puspitasari et al., 2018). Furthermore, the SAVI learning model incorporates several learning styles through multisensory experiences (Saifuddin et al., 2020). The presence of direct physical participation and multisensory learning will assist students in grasping ideas and organizing and connecting knowledge systematically (Syarifudin et al., 2025). This helps pupils' cognitive learning results improve. Multisensory experiences provide information from several sources, unlike traditional learning, which only employs one sense, such as hearing (Junilasari et al., 2019).

Students' mastery of cognitive learning outcome indicators taught with the SAVI learning model surpasses those instructed via the conventional learning model. Indicator C4 (Analysis) is 81.56%, whereas the control class (conventional) is at 72.73%. In indicator C5 (Evaluation), pupils' mastery in the experimental group (SAVI) is 75.62%, whereas in the traditional class, it is merely 70.56%. Moreover, in indication C6

(Creating), 75% of pupils in the experimental class have achieved mastery. This contrasts with the control group (conventional), which achieved only 66% mastery. The percentage of cognitive learning outcomes mastery in students is highest in indicator C4 (Analysis) since question indicators C5 (Evaluation) and C6 (Creating) are greater than C4. Furthermore, this feature of the SAVI technique uses cognitive capacities to think, describe, and form conclusions (Entingunusa et al., 2023). Other research has revealed that SAVI is a learning process for developing analytical problem-solving skills (Fitriani et al., 2023).

The study's results significantly affected cognitive learning outcomes among pupils taught using the SAVI learning model and those subjected to traditional teaching. The results of this investigation correspond with other studies indicating that the SAVI learning model positively impacts student learning outcomes (Djabba et al., 2023; Fajriah et al., 2020; Serevina et al., 2023; Silsilatul Mutawar Ridho et al., 2023). The findings of this study on the benefits of the SAVI model on increasing cognitive learning outcomes were able to address the issues that arose at the research location. Those taught utilizing the SAVI model had better cognitive learning results than those taught without it. The findings of this study are consistent with prior research, which shows that learning using SAVI media-based learning media may considerably increase student learning outcomes (Nitte et al., 2025).

The SAVI learning model enhances students' cognitive learning outcomes by promoting active engagement through integrating physical movement and intellectual activities while guiding students to explore diverse information sources accessed via the five senses (Puspitasari et al., 2018). Additional research indicates that incorporating all SAVI elements—Somatic (S), Auditory (A), Visual (V), and Intellectual (I)—into the learning process enhances its effectiveness and engagement, as the SAVI learning model serves as an optimal foundation for mastering diverse disciplines (Dapa et al., 2019). The learning outcomes will be favorable if students focus on the subject matter (Istiqomah et al., 2020).

This SAVI learning model follows the accelerated learning theory based on the right/left brain theory, the three-in-one brain theory, and modality choices (visual, auditory, and kinesthetic) (Rahayu et al., 2019). In the SAVI learning model, students can build knowledge based on their experiences during the learning process by using all senses (Izzuddin, 2022). In addition, SAVI is also supported by the theory of constructivism, which states that students learn better through direct experience and active participation, which helps them build new knowledge from meaningful experiences (Ningsih & Nugraha, 2025).

This study's results indicate that the SAVI learning model significantly influences students' cognitive learning outcomes. This finding aligns with other research indicating that SAVI enhances students' cognitive ability (Wahyuni et al., 2022). The SAVI learning model fosters an enhanced and engaging educational environment, stimulates creativity, enhances psychomotor skills, optimizes concentration, employs a flexible and diverse approach, and cultivates a positive atmosphere (Umayah et al., 2020).

Nonetheless, the findings of this study were conducted on a limited scale. Consequently, additional studies must investigate the broader impact of the SAVI learning model and analyze in greater detail the specific components of the SAVI model that most significantly affect and enhance students' cognitive learning results. Furthermore, researchers have little control over other elements influencing the efficiency of SAVI implementation, such as students' physical, intellectual, and psychological health and student infrastructure during the learning process. Previous research has shown that student conditions, learning objectives, teaching and learning activity situations, facility availability, teacher abilities, and available time allocation all impact the SAVI model's effectiveness.

Overall, the SAVI learning model can improve students' cognitive learning outcomes because teachers can incorporate various activities such as dancing, watching, and group work, which can encourage students' active participation in the learning process by integrating different learning styles through multisensory experiences. The findings of this study can help practitioners and academics in education conduct more research and identify learning models suited to students' needs and skills to enhance their learning outcomes.

CONCLUSION

The research findings indicate that most cognitive learning outcomes of pupils instructed through the SAVI learning model fall within the good category, and there exists a significant disparity in cognitive learning outcomes among pupils who learned via the SAVI model and those receiving conventional instruction. Indicator C4 (analysis) is the cognitive learning outcome indicator students grasp the most when using the SAVI learning model. SAVI can increase cognitive learning results by actively engaging students by integrating physical and intellectual exercise. Using the SAVI model in grade IV primary school can give a new viewpoint on learning by integrating multimodal experiences to improve learning results. The SAVI learning model may be used by including activities such as dancing, observing, and group work to enhance students' active participation in the learning process via multisensory experiences. Future research must investigate the impact of the SAVI learning model, which is extensive and affects 21st-century skills, and analyze in greater detail the specific steps of the SAVI learning model that most significantly enhance students' cognitive learning outcomes.

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