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The effect of SDL and creative thinking on learning outcomes in Pancasila education material

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ABSTRACT

This study is motivated by the importance of improving students' learning outcomes in Pancasila Education at the elementary school level. The purpose of this research is to examine the effect of the Self-Directed Learning model on students' learning outcomes, as well as the interaction between the learning model and creative thinking skills on learning outcomes. This research employed a quantitative method with a quasi-experimental design. The sample was selected using total sampling, where class IVA served as the experimental group applying the Self-Directed Learning model, and class IVB as the control group using the Direct Instruction model. Research instruments included tests and questionnaires to measure learning outcomes and creative thinking skills. The results of the Anova analysis indicated that the Self-Directed Learning model had a significant effect on improving students' learning outcomes. Additionally, the interaction between the learning model and creative thinking skills also had a significant impact on learning outcomes. These findings demonstrate that the Self-Directed Learning model is effective in enhancing students' learning outcomes in Pancasila Education.

ABSTRAK

Penelitian ini dilatarbelakangi oleh pentingnya peningkatan hasil belajar peserta didik pada materi Pendidikan Pancasila di sekolah dasar. Tujuan penelitian ini adalah untuk mengetahui pengaruh model pembelajaran Self-Directed Learning terhadap hasil belajar peserta didik, serta interaksi antara model pembelajaran dan kemampuan berpikir kreatif terhadap hasil belajar. Penelitian ini menggunakan metode kuantitatif dengan desain quasi eksperimen. Sampel diambil secara total sampling, di mana kelas IVA sebagai kelas eksperimen menerapkan model Self-Directed Learning dan kelas IVB sebagai kelas kontrol menggunakan model Direct Instruction. Instrumen penelitian berupa tes dan angket digunakan untuk mengukur hasil belajar dan kemampuan berpikir kreatif peserta didik. Hasil analisis Anava menunjukkan bahwa model Self-Directed Learning berpengaruh signifikan terhadap peningkatan hasil belajar peserta didik. Selain itu, kemampuan berpikir kreatif dan interaksi antara model pembelajaran dengan kemampuan berpikir kreatif juga memberikan pengaruh signifikan terhadap hasil belajar. Temuan ini menunjukkan bahwa model Self-Directed Learning efektif dalam meningkatkan hasil belajar peserta didik pada materi Pendidikan Pancasila.

Kata Kunci: berpikir kreatif; hasil belajar; self-directed learning

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INTRODUCTION

The nation's progress depends heavily on the quality of education, as stipulated in Undang-Undang Nomor 20 Tahun 2003 concerning the Sistem Pendidikan Nasional, which is a conscious and planned process for developing students' potential. The national education system aims to shape a generation of faithful, pious, intelligent, and creative individuals in accordance with the values of Pancasila. Pancasila education is a compulsory subject at all levels, to develop students' character and competence through the values of the Profil Pelajar Pancasila, one of which is creativity (Dewi, 2022). The Independent Curriculum emphasizes competency-based learning and provides teachers and students with the freedom to innovate, be independent, and be creative, in line with the student-centered learning paradigm (Nailu & Haeruddin, 2025). One important dimension is creative thinking, namely the ability to generate new ideas and innovative solutions, which is essential for addressing today's challenges (Aulia, 2023). Creative thinking skills include fluency, flexibility, originality, and elaboration (Sari *et al.*, 2023).

Many teachers still use direct learning models (*e.g., Direct Instruction), which are teacher-centered and lead to reduced student activity and suboptimal development of creative thinking skills* (Parihah *et al.*, 2022). Observations at 100723 Aekngadol/Sitinjak Public Elementary School indicated that Pancasila Education learning outcomes remained low, with students tending to be passive, lacking independence, and less able to express new ideas. Mid-term exam scores had not yet reached the Minimum Completion Minimum (KKM) standard of 75, and affective and psychomotor learning outcomes were also suboptimal. *Self-Directed Learning* (SDL) offers a solution by placing students at the center of their learning process, with teachers serving as facilitators (Anjani *et al.*, 2025). SDL has been proven to increase student independence, motivation, critical thinking skills, and learning outcomes (Duha, 2024). Recent research indicates that the implementation of SDL has a positive impact on students' academic achievement, independence, and the courage to express their opinions (Bishara, 2021).

This research is similar to several previous studies that show that a student-centered learning model can improve learning outcomes and creative thinking skills in Pancasila Education. One study used this model. *Think Talk Write* (TTW) emphasizes the active engagement in the stages of thinking, speaking, and writing to foster students' creativity, critical thinking, and independence in learning (Karnia & Ari, 2023). Both approaches also criticize teacher-centric, direct-learning methods and encourage the use of more interactive, innovative learning models. However, this study differs from those journals in its learning model. This study adopts the SDL model, which emphasizes student independence in managing the learning process, with the teacher acting as a facilitator (Saputri *et al.*, 2023). Meanwhile, other journals have focused more on the TTW model, which emphasizes social interaction and collaboration among students through structured stages of thinking, speaking, and writing (Roisah *et al.*, 2023). Thus, the SDL approach emphasizes individual independence, whereas TTW emphasizes collaboration and communication among students.

Creativity also significantly influences learning outcomes, with creative students typically achieving higher results than less creative students (Aulia, 2023). The interaction between the right learning model and creative thinking skills can improve overall learning outcomes, including cognitive, affective, and psychomotor (Khaira et al., 2023). However, research on the influence of SDL and creative thinking skills in Pancasila Education remains limited. In fact, Pancasila Education is crucial in developing students' abilities to solve complex social problems. Therefore, this study is important for analyzing the influence of the SDL model and creative thinking skills on student learning outcomes in Pancasila Education materials for grade IV at SD Negeri 100723 Aekngadol/Sitinjak.

LITERATURE REVIEW

Learning model *Self-Directed Learning* (SDL)

Self-Directed Learning (SDL) is a learning model that provides students with the freedom to learn independently and assume full responsibility for their learning process (Pratimi, 2024). In this model, students do not merely passively receive material; they actively set goals, select learning resources, manage time, and evaluate their learning outcomes. Thus, SDL aims to increase student independence and responsibility in learning. The SDL learning model is based on a constructivist approach, a philosophy of knowledge that emphasizes that individuals themselves form knowledge through experience and reflection. The constructivist approach places students at the center of learning (*student-centered learning*), in which the teacher serves as a facilitator who helps students actively construct understanding. Constructivism asserts that individuals construct knowledge through active, reflective learning (Bettencourt, 2020).

In its implementation, the SDL model encourages students to set their own learning goals, seek and use diverse learning resources, and develop learning strategies tailored to their individual learning styles. Furthermore, students are encouraged to conduct periodic self-evaluations to measure progress and improve their learning process. Through this process, not only do academic abilities improve, but also attitudes of responsibility, independence, and lifelong learning skills (lifelong learning) are formed.

Learning model: *Direct Instruction*

Direct learning model (*Direct Instruction*) is a learning approach designed to support student learning, with a focus on the acquisition of declarative and procedural knowledge in a structured, gradual manner (Purwaningsih & Wangid, 2021). This approach places the teacher at the center of learning activities, actively directing and guiding students in understanding the material and developing basic skills systematically (Setiawan *et al*., 2024). With clear syntax or learning stages, this model helps students learn the material step by step, thereby facilitating understanding and application.

Furthermore, the direct instruction model emphasizes the importance of classroom management and a conducive learning environment for effective learning and the achievement of learning objectives. The teacher acts as a facilitator, not only delivering content but also providing ongoing practice, feedback, and evaluation to ensure that students master the skills and knowledge taught. Therefore, this model is highly effective for learning basic skills and mastering information that requires a gradual and structured approach. Overall, the direct instruction model is an appropriate method for improving student learning outcomes through systematic instruction, intensive teacher supervision, and the gradual development of knowledge and skills. This model provides a clear framework for teachers to optimize the learning process and help students achieve expected competencies (Purwaningsih & Wangid, 2021; Setiawan *et al.*, 2024).

Creative Thinking Skills

Creative thinking is the ability to generate new ideas or approaches to producing a product. Creative thinking is classified as a high level of competence that can be possessed by individuals (Nawati *et al.*, 2024). In another account, creative thinking is described as a series of cognitive activities used to address problems, drawing on imagination, intelligence, and insight (Rahayuningsih *et al.,* 2024). In the learning process, creative thinking skills can be developed through activities that involve cognitive, affective, and psychomotor skills (Siang *et al.*, 2020). Therefore, creative thinking can be defined as an important competency that involves various cognitive and emotional processes and can be developed in an integrated manner through holistic learning to produce innovative and adaptive solutions to various challenges.

Learning outcomes

Learning outcomes are the abilities students acquire after participating in learning activities (Cahyanti *et al*., 2024). Learning outcomes are the abilities students acquire after the teaching and learning process, encompassing affective, cognitive, and psychomotor aspects (Nurmayanti *et al*., 2025). The cognitive aspect concerns mental activities involved in understanding and processing information; the affective aspect concerns feelings such as interests and attitudes; and the psychomotor aspect concerns motor skills.

Student learning outcomes are influenced by two main factors: internal factors originating within the student and external factors originating from the surrounding environment (Luthfiah & Sartika, 2021). One internal factor that plays a significant role is learning motivation, which can encourage students to be more active, disciplined, and enthusiastic in participating in the learning process (Tonge *et al.,* 2023). Thus, both internal and external factors interact to determine the success of student learning outcomes.

Pancasila Education

Pancasila education is a learning process that aims to instill an understanding of, and the application and practice of, the values of Pancasila as the foundation of the state (Asmah *et al*., 2022). Through Pancasila education, students are expected to develop character traits that reflect these values, such as tolerance, discipline, and patriotism. This character development contributes to the formation of a harmonious and united society (Imami *et al*., 2025). Pancasila education not only shapes national insight but also provides an important foundation for developing students' character, enabling them to maintain national unity and integrity by practicing the noble values of Pancasila in everyday life.

METHODS

This study employed a 2 x 2 factorial quasi-experimental design to test the effects of learning models and creative thinking skills on student learning outcomes in Pancasila education materials. The quasi-experimental method was chosen because the population was heterogeneous and did not permit random assignment of participants to groups; therefore, the existing classes (classes IVA and IVB) were used as the experimental and control groups (Gopalan *et al*., 2020). The research sample comprised 48 fourth-grade students from SD Negeri 100723 Aekngadol/Sitinjak, divided into class IVA (24 students) as the experimental class implementing the SDL model and class IVB (24 students) as the control class using the *Direct Instruction* model.

The research phase began with the provision of learning treatment for one cycle in both classes. The experimental class received learning using the SDL model, while the control class used the *Direct Instruction* model. Before and after the treatment, students were given a test instrument to measure learning outcomes and a questionnaire to measure creative thinking skills. The test instrument was designed based on indicators of Pancasila Education materials and was tested for validity and reliability. The creative thinking skills questionnaire used a validated Likert scale.

Data were analyzed using a two-way analysis of variance (ANOVA) to test the effects of the learning model (Self-Directed Learning vs. Direct Instruction) and creative thinking ability (high vs. low), as well as their interaction, on student learning outcomes. This analysis was chosen because it can test two independent variables simultaneously, as well as their interaction with the dependent variable (Gopalan *et al*., 2020). Before the main analysis, prerequisite tests, such as normality and homogeneity of variance, were conducted to ensure that the data met the assumptions of ANOVA.

This study modified the 2 x 2 factorial design by including creative thinking ability as a moderator variable that differentiates students with high and low creative thinking ability. This modification aimed to provide a more comprehensive picture of the interaction between learning models and creative thinking ability in relation to learning outcomes. The use of total sampling and pre-formed classes was an adjustment to field conditions that precluded full randomization (Jelena & Jelena, 2022).

RESULTS AND DISCUSSION

Description of Pre-test Scores

The pre-test was conducted prior to the learning process, in which the experimental class used the SDL model and the control class used the direct interaction model. Based on manual calculations from the data tabulation, the pre-test results are presented in **Table 1**.

Table 1. Description of Students' Pre-test Scores

Class	Ideal Values	N	x_{min}	x_{max}	$\bar{x}$	S
Experimental Class (SDL)	100	24	53	69	61	4,92
Control Class (DI)	100	24	50	71	58.66	5

Source: Research 2025

The average pre-test score for creative thinking of students in the experimental class was 61, while the control class scored 58.66. With a small difference, the experimental class performed better. The students' initial ability was classified into two groups: low and high. The students' abilities are grouped in **Table 2**.

Table 2. Average Pre-test Scores of Students

Category	Statistics	Class	
		Experiment	**Control**
High	N	15	9
	$\bar{x}$	64.2	63.9
	S	2.73	3.22
Low	N	9	15
	$\bar{x}$	55.7	55.5
	S	2.35	2.67

Source: Research 2025

Based on **Table 2, the pre-test score for creative thinking is. In** the experimental class, there were 15 students with high ability and 9 students with low ability. Meanwhile, in the control class, there were 9 students with high ability and 15 students with low ability.

Post-test Results of Creative Thinking Data

Post-tests of creative thinking were administered to students in the experimental and control classes to assess creative thinking following the treatment. The treatment given to the experimental class was the

implementation of the SDL learning model. This SDL model encourages students to learn independently by managing their own learning process, so it is expected to significantly improve creative thinking skills compared to the control class, which did not receive this treatment. Thus, the difference in post-test results between the experimental and control classes indicates a positive effect of implementing the SDL learning model on students' creative thinking abilities. The post-test results are shown in **Table 3**.

Table 3. Description of Post-test Results on Creative Thinking

Class	Ideal Values	N	x_{min}	x_{max}	$\bar{x}$	S
Experimental Class (SDL)	100	24	76	100	92.88	5.85
Control Class (DI)	100	24	64	100	88.63	8.37

Source: Research 2025

As shown in Table 3, the minimum value in the experimental class is 76. Meanwhile, the minimum value for the control class is 64. The maximum value for both classes is 100. The average *post-test* result for the creative thinking ability for the experimental class was 92.88, and for the control class was 88.63. Meanwhile, the standard deviation value for the experimental class was 5.85, and for the control class was 8.37. The average post-test students' creative thinking abilities based on creative thinking indicators are presented in **Table 4** as follows:

Table 4. Average Post-Test of Creative Thinking Skills

Indicator	Statistics	Class	
		Experiment	Control
Fluent (*Fluency*)	$\bar{x}$	9.06	8.77
	S	1.00	0.59
Flexible (*Flexibility*)	$\bar{x}$	9.15	8.96
	S	0.26	0.51
Original (*Originality*)	$\bar{x}$	9.69	8.79
	S	0.97	0.44
Detailing (*Elaboration*)	$\bar{x}$	9.79	8.71
	S	1.02	1.706

Source: Research 2025

In the fluency indicator for the experimental class with an average of 9.06 and the control class 8.77, the flexibility indicator in the experimental class with an average of 9.15 and the control class 8.96, the originality indicator in the experimental class with an average of 9.69 and the control class 8.79, and the detailed indicator in the experimental class with an average of 9.9 and the control class 8.71. The bar chart shows the average level of creative thinking ability.

Pre-test Learning Outcome Data Results

A pre-test is administered to classify students' abilities as low or high. A pre-test is administered before the learning steps in the experimental class, and in the control class, the model is applied directly through Direct Instruction.

Table 5. Description of *Pre-Test* Learning Outcomes

Class	Ideal Values	N	x_{min}	x_{max}	$\bar{x}$	S
Experimental Class (SDL)	100	24	45	85	68.2	12.82
Control Class (DI)	100	24	45	85	63.8	10.73

Source: Research 2025

Based on **Table 5**, the average value-pretest cognitive domain of students in the experimental class with the SDL model was 68.2, while in the control class with theDirect Instruction model was 63.8. By a relatively small margin, the experimental class outperformed the control group. Students' initial abilities were classified into high and low categories, as follows:

Table 6. Average pre-test learning outcomes

Category	Statistics	Class	
		Experiment	**Control**
High	N	14	9
	$\bar{x}$	77.14	72.08
	S	6.71	6.89
Low	N	10	15
	$\bar{x}$	54.5	54.8
	S	4.97	4.98

Source: Research 2025

Based on **Table 6,** the learning outcomes indicate the value of the pre-test in the experimental class: 14 students had high ability, and 10 had low ability. Meanwhile, in the control class, there were 9 students with high ability and 15 students with low ability.

Post-test Learning Outcome Data Results

Table 7. Value Description of *Post-test* Learning outcomes

Class	Ideal Values	N	x_{min}	x_{max}	$\bar{x}$	S
Experimental Class (SDL)	100	24	75	100	84.58	11.22
Control Class (DI)	100	24	60	100	81.04	12,77

Source: Research 2025

Based on Table 7, the average post-test learning outcomes for students in the experimental class using the SDL model were 84.58, whereas those for the control class using the Direct Instruction model were

81.04. With a relatively small difference, the experimental class showed higher results. The results were post-test classified into two ability categories, namely high and low, as follows.

Table 8. Average Value of *Post-test* Learning Outcomes

Category	Statistics	Class	
		Experiment	**Control**
High	N	20	18
	$\bar{x}$	88	86.67
	S	8.80	9.23
Low	N	3	6
	$\bar{x}$	67.5	64.17
	S	2.89	2.24

Source: Research 2025

Table 8 shows that in the high initial ability group, the average learning outcomes for students in the experimental class were 88 (SD = 8.80), whereas in the control class, they were 86.67 (SD = 2.24). In the low-ability group, the average in the experimental class was 67.5 (SD = 2.89), and in the control class, it was 64.17 (SD = 2.24).

Hypothesis Testing

Table 9. Two-Way Analysis of Variance Results Table

Tests of Between-Subjects Effects					
Dependent Variable: LEARNING OUTCOME					
Source	Type III Sum of Squares	df	Rate-rate	F	Say.
Corrected model	3888,368ᵃ	3	1296,123	21,532	,000
Interception	218946,007	1	218946,007	3637,236	,000
Learning model	237,674	1	237,674	3,948	,017
Creative Thinking Ability	3650,174	1	3650,174	60,638	,000
Learning Model * Creative Thinking Ability	50,174	1	50,174	,834	,037
Error	2648,611	44	60,196		
Total	337375,000	48			
Number of Connected	6536,979	47			

a. R Squared = ,595 (Adjusted R Squared = ,567)

Source: Research 2025

First Hypothesis

H0 : µA1 ≤ µA2
Ha : µA1 > µA2

Information:

µA1: Average learning outcomes of students who receive learning using the SDL learning model.
µA2: Average learning outcomes of students who receive learning using the *Direct Instruction* learning model.

Based on the ANOVA results in Table 9, the F-count is 3.948, and the p-value is 0.017, which is smaller than 0.05, indicating a significant difference between the average learning outcomes of the SDL model (85) and Direct Instruction (81). Thus, the learning outcomes in the SDL model exceed those of *Direct Instruction*; therefore, Ho is rejected, and Ha is accepted. Rejection of the null hypothesis (H0) indicates that the SDL model has a greater positive effect on student learning outcomes than *Direct Instruction.* This indicates that implementing SDL can improve learning effectiveness.

Second Hypothesis

H0 : µA1 B1 ≤ µA2B1
Ha : µA1 B1 > µA2B1

Information:

µA1: Average learning outcomes of students with the SDL learning model who have high creative thinking skills.
µA2: Average learning outcomes of students using the learning model *Direct Instruction* who have high creative thinking skills.

The ANOVA results show an F_{count} of 30.256 with a significance of 0.00 which is smaller than 0.05, indicating a significant difference between the average learning outcomes of students with high creative thinking skills taught using the SDL and Direct Instruction models. The average learning outcomes in the SDL group (89.44) are higher than those in the Direct Instruction group (86.67). Thus, the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted, which means the SDL model is more effective in improving the learning outcomes of students with high creative thinking skills than the Direct Instruction model. This shows that a learning approach that encourages student independence and creativity can have a greater positive impact on their academic achievement.

Third Hypothesis

H0 : µA1B2 ≥ µA2B2
Ha : µA1B2> µA2B2

Information:

µA1: Average learning outcomes of students using the SDL learning model who have low creative thinking skills.
µA2: Average learning outcomes of students using the learning model *Direct Instruction* who have low creative thinking skills.

ANOVA results in Table 9 show F F-value of 60,638 (p < 0.001), indicating a significant difference in average learning outcomes between students with low creative thinking abilities taught using the SDL model and *Direct Instruction*. The average learning outcome in the SDL group was 71.67, whereas in the

Direct Instruction group it was 64.17. Because the average learning outcomes in SDL exceed those in Direct Instruction, the null hypothesis (H0*), which states that there is no difference in learning outcomes between the two learning models, is rejected. The alternative hypothesis (Ha), which states that there is a difference in learning outcomes,* is accepted. The rejection of Ho and acceptance of Ha indicate that the SDL model has a greater influence on the learning outcomes of students with low creative thinking abilities than the *Direct Instruction* model*.* In other words, the implementation of SDL is more effective in improving the learning outcomes of groups of students with low creative thinking skills; therefore, this model may be the appropriate choice to improve their learning outcomes.

Discussion

The results above indicate that the SDL learning model has a significant impact on student learning outcomes. This learning model provides students with the opportunity to control the learning process, be motivated to learn, and be actively involved in learning. Students have clear goals and responsibilities for achieving them (Septian *et al.*, 2023). This can increase students' interest in the learning material and encourage them to study more deeply. Furthermore, in the SDL learning model, students are encouraged to seek information, ask questions, and think critically about the learning material. This process helps students develop a deeper understanding of the concepts under study. Furthermore, when students are actively engaged in the learning process, the information they acquire is more easily remembered and retained over the long term (Rosyiddin *et al.*, 2023; Simanungkalit *et al.*, 2024).

This finding aligns with results from other studies showing that SDL significantly improves learning motivation and academic outcomes by giving learners greater control over their learning process (Doo *et al.*, 2023). Other research also confirms that SDL encourages students to actively seek information, ask questions, and think critically, thereby increasing their involvement in learning (Chukwunemerem, 2023). In addition, students' active involvement in SDL facilitates the long-term retention of the information obtained (Lee & Choi, 2023). Other studies support that SDL increases learning interest and encourages deeper learning, while others confirm that SDL facilitates active student engagement in online learning, which strengthens conceptual understanding and overall learning outcomes (Kurniawan & Wulandari, 2024; Simanjuntak & Putra, 2023)

Based on the research results above, it is understood that creative thinking skills influence student learning outcomes. This is based on students' activities in independently or collaboratively carrying out projects, using various information sources to solve problems. Therefore, the study demonstrates that students' creative thinking skills have a significant influence, as evidenced by test and questionnaire results, supported by theory and prior research (Hsia *et al.*, 2021). The interaction of learning models and creative thinking skills on educational learning outcomes from the problems presented. Students with strong creative thinking skills can optimally implement all steps of the SDL learning model. Beginning with equipment preparation and understanding the problem's theme or topic, students discuss the problem in groups to solve it, present the group's discussion results in a report, and reflect on all steps of the learning activity by assessing each step (Bhakti & Nafi'ah, 2025). Student learning outcomes improve in line with their creative problem-solving skills. Likewise, students' ability to collaborate in groups, including their capacity to think critically about suggestions, opinions, and responses together, demonstrates their creative thinking within their teams.

CONCLUSION

Based on the research results, it can be concluded that the *Self-Directed Learning* (SDL) model is significantly more effective in improving student learning outcomes in Pancasila Education materials than

the traditional Direct Instruction model. In addition, students' creative thinking skills play a significant moderating role in the effectiveness of the learning model; students with high creative thinking skills who learn using the SDL model achieve more optimal learning outcomes. Therefore, the implementation of the SDL model is strongly recommended, particularly to support students with strong creative thinking skills in achieving better learning outcomes.

As a suggestion for further research and practice, it is recommended that the implementation of the SDL model be enhanced by integrating information technology and innovative learning media to maximize student learning independence and learning outcomes. Furthermore, training and mentoring for teachers and students are needed to ensure effective and sustainable understanding and implementation of this learning model. Further research could explore other variables that may influence the effectiveness of the SDL learning model in broader contexts.

AUTHOR'S NOTE

The author declares that there is no conflict of interest regarding the publication of this article. The author confirms that the article's data and content are free of plagiarism.

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