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Effect of making a match model, flashcard media, and motivation on learning outcomes

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ABSTRACT

The implementation of Pancasila Education learning in elementary schools faces various challenges. This research was motivated by the low learning outcomes of students in Pancasila Education subjects, caused by a lack of learning motivation and a limited variety of teaching models. This study aimed to determine the effect of the cooperative learning model type Make-a-match assisted by flashcard media on students' learning outcomes in cognitive, affective, and psychomotor domains, as well as the interaction with learning motivation. This study employed a quasi-experimental method with a 2×2 factorial design. The research subjects consisted of 42 fifth-grade students divided into experimental and control groups. Data were collected through tests and questionnaires, and analyzed using two-way ANOVA with the help of SPSS. The findings indicated that the Make-a-match model, assisted by flashcard media, had a significant impact on improving students' learning outcomes. Additionally, students with high learning motivation achieved better performance, and there was a significant interaction between the learning model and learning motivation on student outcomes. The Make-a-match model with flashcards proved to be effective in fostering active and interactive learning, making it a suitable strategy for Pancasila Education.

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ABSTRAK

Pelaksanaan pembelajaran Pendidikan Pancasila di sekolah dasar menghadapi berbagai tantangan. Penelitian ini dilatarbelakangi oleh rendahnya hasil belajar peserta didik dalam mata pelajaran Pendidikan Pancasila yang disebabkan oleh kurangnya motivasi belajar dan kurang variatifnya model pembelajaran yang diterapkan. Tujuan dari penelitian ini untuk mengetahui pengaruh model pembelajaran kooperatif tipe Make-a-match berbantuan media flashcard terhadap hasil belajar peserta didik ditinjau dari aspek kognitif, afektif, dan psikomotorik serta interaksinya dengan motivasi belajar. Metode penelitian yang digunakan yaitu eksperimen semu dengan desain faktorial 2×2. Subjek penelitian terdiri dari 42 peserta didik kelas V yang dibagi dalam dua kelompok, yaitu kelas eksperimen dan kelas kontrol. Teknik pengumpulan data menggunakan tes dan angket, sedangkan analisis data dilakukan dengan uji ANAVA dua jalur menggunakan bantuan SPSS. Hasil penelitian menunjukkan bahwa model pembelajaran Make-a-match berbantuan media flashcard berpengaruh signifikan terhadap peningkatan hasil belajar peserta didik. Temuan lain menunjukkan bahwa peserta didik dengan motivasi belajar tinggi menunjukkan hasil belajar yang lebih baik, dan terdapat interaksi signifikan antara model pembelajaran dan motivasi belajar terhadap hasil belajar. Model Make-a-match berbantuan flashcard terbukti mampu menciptakan suasana belajar yang aktif dan interaktif, serta efektif diterapkan dalam pembelajaran Pendidikan Pancasila.

Kata Kunci: *hasil belajar; media flashcard; motivasi belajar; make-a-match*

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INTRODUCTION

The implementation of Pancasila Education learning in elementary schools up to the present time still faces various obstacles that have an impact on the low quality of student engagement. The dominance of the lecture method as the main approach in delivering material causes the learning process to take place in a one-way manner without providing participatory space for students (Ngasmarani *et al*., 2024). he low level of active student involvement in the learning process has a negative impact on learning motivation and the achievement of learning outcomes, both in the cognitive, affective, and psychomotor domains (Hidayah & Saputro, 2024). The lack of variation in learning methods and instructional media also becomes an inhibiting factor in creating an engaging and meaningful learning atmosphere for elementary school students (Setiawan *et al*., 2024). These conditions indicate that conventional approaches are no longer relevant in addressing the demands of character education and 21st-century competencies. This issue emphasizes the urgency of innovating learning approaches that are more interactive, collaborative, and contextual in the subject of Pancasila Education. The existence of the Pancasila Education subject in elementary schools carries a strategic responsibility to instill the nation's noble values from an early age through active and meaningful learning approaches (Aqna *et al*., 2024). Learning is no longer sufficient if it is merely oriented toward cognitive achievement; rather, it must encourage students to internalize values and demonstrate changes in attitudes and behavior (Ardiansyah *et al*., 2024).

Learning outcomes in the subject of Pancasila Education serve as an important indicator for measuring success in instilling national values. The results of initial observations indicate that the implementation of Pancasila Education learning in Grade V at SDN 104244 Jati Sari faces several obstacles that directly affect the low achievement of learning objectives. The learning process remains teacher-centered, with a dominance of lecture-based instruction without active student involvement. Observations show that students tend to be passive, lack focus, and do not demonstrate enthusiasm in participating in learning activities. Students' disinterest is reflected in behaviors such as daydreaming, not paying attention to the teacher's explanations, and being reluctant to ask questions. Evaluation of learning outcomes also shows that the majority of students have not yet reached the Minimum Mastery Criteria (KKM), which is 75, with only about 35% of Grade V-A students and 27.77% of Grade V-B students successfully exceeding this threshold. The absence of instructional media and the lack of variation in learning models further exacerbate the low motivation and learning outcomes of students. These problems reinforce the need for a transformation in learning approaches that are more active, enjoyable, and oriented toward comprehensive student participation.

Student involvement in understanding basic citizenship concepts, such as norms and rules in social life, is strongly influenced by internal encouragement to learn actively and consistently. Low learning motivation can have a direct impact on students' incomplete understanding of the values contained in social norms and applicable legal rules (Noor *et al*., 2022; Salamah, 2022). This condition hinders the development of awareness of how to behave in accordance with Pancasila values, especially among elementary school–aged children who are still in the character development phase. Learning success is not only indicated by the achievement of academic scores, but also by students' ability to apply norms and rules concretely in their daily lives (Hidayati *et al*., 2022; Irfan & Savitri, 2022). High motivation enables students to more easily internalize the material, understand the meaning of values, and reflect on learning as part of real behavior in social life. This understanding leads to the importance of designing learning strategies that are able to stimulate motivation and create learning experiences that are relevant and contextual for students.

The make-a-match model and flashcard media serve as pedagogical solutions that encourage students' active, collaborative, and reflective engagement in the learning process. The combination of an interactive model and concrete visual media is believed to create learning experiences capable of simultaneously stimulating both intrinsic and extrinsic student motivation (Isnaeni & Radia, 2021; Niño *et al*., 2024).

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Previous studies indicate that the use of active learning approaches and engaging media can significantly enhance students' learning motivation (Murdaya *et al*., 2021; Ubaidillah *et al*., 2023). These findings are reinforced by experimental studies demonstrating that cooperative learning models are able to foster active student participation, a sense of responsibility, and interest in the learning material. Nevertheless, most of these studies tend to separate the influence of learning models and media on learning motivation from learning outcomes, or only measure effects on motivational aspects alone. A focus on the motivational domain without integration with cognitive and psychomotor achievement creates a gap in a comprehensive understanding of learning effectiveness. The existence of this gap opens research opportunities to directly examine the interaction between the cooperative learning model of the make-a-match type assisted by visual media, such as flashcards, and students' learning motivation levels, as well as its impact on holistic learning outcomes.

This study is designed to contribute to the development of Pancasila Education learning strategies that not only enhance learning motivation but also have a tangible impact on improving learning outcomes in a comprehensive manner. The synergy between this model and media not only enriches instructional variation but also addresses learning needs that demand the integration of knowledge, skills, and attitudes within the subject of Pancasila Education. This strategy strengthens a pedagogical approach oriented toward character development and holistic value understanding through active and meaningful learning experiences. This study aims to examine the effectiveness of the cooperative learning model of the make-a-match type assisted by flashcard media in improving students' learning outcomes in the subject of Pancasila Education. Another objective is to identify differences in learning outcomes between students with high learning motivation and those with low learning motivation. This study focuses on analyzing the interaction between the implementation of the make-a-match model assisted by flashcard media and the level of learning motivation on students' overall learning outcomes. This research is expected to serve as a foundation for the development of studies on learning models assisted by instructional media.

LITERATURE REVIEW

Learning Outcomes

Understanding learning outcomes is key to assessing the success of the educational process because they reflect the attainment of competencies expected in the curriculum. Theoretically, learning outcomes encompass cognitive, affective, and psychomotor dimensions that are interrelated in shaping a holistic learner profile (Habsy *et al*., 2023). This theoretical foundation aligns with the constructivist approach, which emphasizes the active role of students in constructing knowledge through meaningful learning experiences (Babullah, 2022). Previous studies indicate that learning outcomes can be improved through the use of active learning models that encourage direct student engagement, such as cooperative approaches and visual media (Elya *et al*., 2024; Muryanto & Anjarwani, 2025; Rosyiddin *et al*., 2023). Several studies focus on the influence of learning models on cognitive aspects alone, without simultaneously including affective and psychomotor indicators, thus failing to reflect holistic learning outcomes. The identification of this gap clarifies that comprehensive measurement of learning outcomes has not yet become a primary focus in many previous studies. The existence of this gap strengthens the urgency of this study to measure learning outcomes across the three domains in an integrated manner within the context of Pancasila Education by using a cooperative learning model approach supported by relevant visual media.

The concept of learning outcomes is also influenced by various internal and external factors that interact with one another. Internal factors such as learning readiness, interest, and individual cognitive abilities play an important role in determining learning achievement. In contrast, external factors include learning strategies, the role of the teacher, and the use of media that support the interaction process between

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students and learning materials (Khaira *et al*., 2023; Yatimah *et al*., 2024). Optimal learning outcomes can only be achieved when learning approaches are able to stimulate students' mental and emotional activities simultaneously. Therefore, the implementation of learning models that involve physical activity, collaboration, and visual stimuli is highly necessary in learning processes aimed at forming strong conceptual understanding and value-aligned attitudes (Thaariq *et al*., 2023). Low student learning outcomes, as indicated by the failure to achieve competency indicator targets, demonstrate that conventional learning approaches have not been able to respond to students' needs comprehensively (Maknun *et al*., 2024). These findings provide a conceptual basis that learning which integrates cooperative approaches and concrete media, such as flashcards, has great potential to improve learning outcomes more comprehensively.

Learning Motivation

Learning motivation is an internal psychological force that drives students to engage actively in the learning process. This concept encompasses cognitive, affective, and conative dimensions that shape students' readiness and willingness to learn and to sustain effort in achieving learning objectives (Filgona *et al*., 2020; Isma *et al*., 2025). The Attention, Relevance, Confidence, and Satisfaction (ARCS) model developed by Keller is one of the important theoretical frameworks in explaining how learning motivation can be fostered through four main elements, namely attention, relevance, confidence, and satisfaction (Efriyenef & Fitria, 2021; Lin *et al*., 2025). Understanding learning motivation cannot be separated from the context and learning strategies used by teachers. When learning strategies are not aligned with students' learning needs, motivation will decline and directly impact learning outcomes.

Cooperative Learning Model of the Make-a-match Type

The cooperative learning model of the make-a-match type is an instructional strategy that emphasizes cooperation among students through interactive activities of matching question cards with answer cards (Aprilia & Dwandaru, 2025). This approach is developed to stimulate collaborative and enjoyable learning activities, with the aim of building conceptual understanding and strengthening students' social skills in learning (Kusumaningtyas & Mirtasari, 2024). The activity of finding matching card pairs within a limited time encourages students to think quickly, engage in active discussion, and make joint decisions efficiently (Karmada, 2023). This learning concept is also aligned with the principles of constructivist-based learning, which positions students as active subjects in constructing knowledge through direct experience and dynamic social interaction (Viergiawati *et al*., 2024). The card-matching activity that lies at the core of the make-a-match model trains quick thinking skills, enhances social interaction, and fosters a healthy sense of competition among students (Juliani *et al*., 2021).

Previous research findings indicate that the consistent implementation of the make-a-match model has a positive impact on improving learning outcomes across various subjects, such as science, mathematics, and Indonesian language (Khotimah & Mulyawati, 2023; Purnama, 2023). These improvements occur not only in the cognitive aspect but also in the affective and psychomotor domains, as this model involves physical and emotional activities that encourage comprehensive student engagement. Several studies have even shown an increase in students' learning motivation and interest in learning after the implementation of the make-a-match model. However, most research has emphasized the effect of the model on learning outcomes alone, without examining the simultaneous relationship between cooperative activities and students' motivational conditions in specific contexts such as Pancasila Education. The lack of studies that explicitly integrate the make-a-match model with the dimensions of learning motivation and learning outcomes within a single comprehensive framework, particularly on the material of values and norms in Pancasila Education, indicates the existence of conceptual and empirical gaps that have not

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been widely explored. This study is designed to fill this gap by testing the effectiveness of the make-a-match model assisted by flashcard media, with the expectation of enriching teachers' pedagogical practices in creating learning that is active, reflective, and meaningful in terms of character and national values (Savitri & Amalina, 2023). This approach is believed to be able to integrate conceptual understanding, active participation, and value internalization more effectively than conventional approaches that are still predominantly used.

Flashcard Learning Media

Visual learning media, such as flashcards, are instructional tools that can enhance students' information absorption through a combination of text and images designed to stimulate cognitive abilities and visual attention. Flashcards work based on the principle of association between verbal concepts and concrete visual representations, thereby strengthening long-term memory and accelerating the process of material internalization (Pan *et al*., 2023). Dual coding theory, developed by Paivio, serves as an important foundation in explaining the effectiveness of this media, as the human brain processes verbal and visual information in parallel, which mutually reinforce each other in working memory (Isya'i & Bektiningsih, 2025; Liu *et al*., 2023). Flashcard media play an important role in strengthening material visualization, accelerating information processing, and providing concrete learning stimuli, especially in conveying abstract material such as norms and rules in social life (Nurfadilah *et al*., 2024). Flashcards that are designed visually and contextually contribute to strengthening memory retention and helping students understand abstract concepts through concrete and visually engaging symbols.

Empirical research shows that the use of flashcards significantly improves understanding of basic concepts, speed of information recall, and students' learning interest across various levels of education (Budiyono *et al*., 2023; Saputra *et al*., 2024). This media has been widely used in vocabulary learning, science, and numeracy literacy, with consistent results in increasing student learning engagement. The use of flashcards as supporting media in active learning models has also been proven to enhance students' focus and motivation, as it involves elements of play, visualization, and interaction. However, most studies still focus on their use as purely cognitive support tools and have not explored the potential of flashcards in the context of strengthening values and character through thematic learning, such as Pancasila Education. The limited number of studies that systematically examine the effectiveness of flashcard media in shaping understanding of social values and character in elementary thematic learning indicates that the pedagogical potential of this media remains underexplored.

The dominant research focus on cognitive aspects alone has not provided a comprehensive picture of the contribution of flashcard media to the dimensions of learning motivation and value internalization in the context of Pancasila Education. The absence of such a comprehensive approach forms the basis for the need to develop learning models that combine elements of concrete visualization and cooperative activities. This study is designed to address this gap through the integration of flashcard media into the make-a-match model, in order to create learning that is not only engaging and interactive but also capable of simultaneously strengthening conceptual understanding and social attitude values. The combination of making a match and flashcard media creates learning that is not only interactive but also able to adapt to the learning characteristics of elementary school–aged children. The selection of appropriate learning strategies provides great opportunities for creating a meaningful learning environment and encourages the integrated development of attitude, knowledge, and skill competencies. Cards containing concise information and attractive visualizations have been shown to reduce students' cognitive load, particularly in abstract materials such as norms, rules, and national values in Pancasila Education (Alvani *et al*., 2024; Fitriani *et al*., 2021).

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METHODS

This study employs a quantitative approach with a quasi-experimental method designed to examine the effects of the cooperative learning model of the make-a-match type, assisted by flashcard media and learning motivation, on students' learning outcomes. The research was conducted at SDN 104244 Jati Sari, Batang Kuis Subdistrict, Deli Serdang Regency, North Sumatra Province, during the even semester of the 2024/2025 academic year. The population of this study consisted of all Grade V students at the school, while the research sample comprised two parallel classes, namely Grade V-A as the experimental class and Grade V-B as the control class, with a total of 42 students. Sample selection was carried out using purposive sampling techniques by considering the equivalence of class characteristics and the availability of classes that allowed the learning model treatment to be implemented consistently.

Data collection in this study was conducted through the distribution of questionnaires and the administration of tests to obtain information on students' learning motivation and learning outcomes in the cognitive, affective, and psychomotor domains. The instruments used consisted of multiple-choice tests to measure cognitive learning outcomes, self-assessment questionnaires to measure the affective domain, and teacher observation sheets to assess the psychomotor domain. Instrument validity was tested through expert judgment by lecturers and subject teachers, while reliability was tested using the Cronbach's Alpha formula for the questionnaires and the Kuder–Richardson (KR-20) formula for the learning outcome tests. Data analysis was conducted quantitatively using a two-way analysis of variance (Two-Way ANOVA) technique processed with SPSS software to identify the direct effects of the learning model and learning motivation, as well as the interaction between both variables on students' learning outcomes significantly.

RESULTS AND DISCUSSION

Pretest Results of Learning Motivation Scores

The motivation pretest was conducted to obtain an overview of students' initial learning motivation levels before the treatment was administered. The measurement was carried out using a questionnaire completed by all students from both the experimental class and the control class. Descriptive analysis results indicate that the average motivation score of students in the experimental class was 77.38, while in the control class it was 73.29. This difference illustrates that students in the experimental class tended to have slightly higher initial motivation compared to those in the control group, although the gap was not substantial. The categories of students' motivation levels in each class were then classified into two groups, namely high motivation and low motivation categories, based on certain cutoff scores that had been statistically determined.

Table 1. Categories of Pretest Learning Motivation Scores

Category	Statistic	Experiment	Control
High	N	9	7
	Percent	43%	33%
	Mean	81.67	80.86
	Std. Dev	1.87	1.21
Low	N	12	14

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Category	Statistic	Experiment	Control
	Percent	57%	67%
	Mean	74.17	69.50
	Std. Dev	1.70	4.59

Source: Research2025

The results of the categorization grouping are presented in detail in **Table 1**. The assumption of normal distribution was tested using the Shapiro–Wilk test because the sample size was less than 50. The significance value for the experimental class was 0.066, and for the control class it was 0.071. Both values are above the minimum threshold of 0.05; therefore, the data in both groups are declared to be normally distributed.

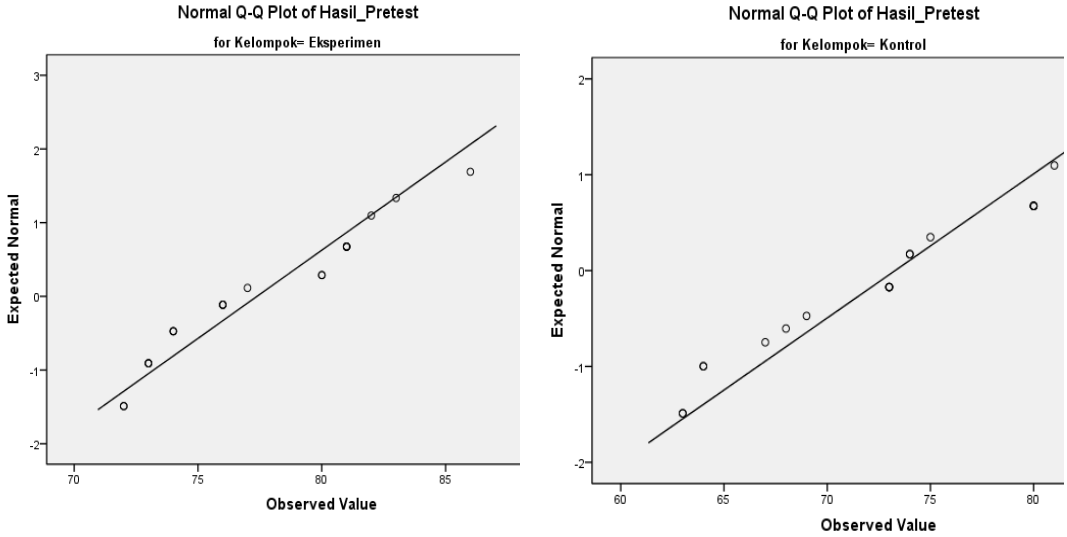

Figure 1. Normality Q–Q Plot Graph of Pretest Learning Motivation Scores
Source: Research 2025

This distribution is also confirmed through the visualization in **Figure 1**, where the data points are consistently distributed along the diagonal line on the Q–Q Plot graph. Variance equality was tested through a homogeneity test using the Test of Homogeneity of Variance approach. The significance value obtained was 0.074. This value indicates that both groups have homogeneous variances; therefore, the data meet the assumptions required for analysis at the next stage.

Pretest Results of Learning Outcomes Scores

The measurement of learning outcome pretests was conducted before the implementation of the learning model treatment in each class. This activity aimed to determine students' initial abilities in understanding Pancasila Education material prior to the application of the cooperative learning model of the make-a-match type, assisted by flashcard media in the experimental class and the conventional method in the control class. The instrument used was a multiple-choice test consisting of 25 items with four answer options, in which each correct answer was scored 1, and each incorrect answer was scored 0. The students' final scores were used to calculate the average pretest scores for both classes. The average

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learning outcome score of students in the experimental class was recorded at 76.57, while that of the control class was 71.24. This difference indicates that the initial ability of students in the experimental class was slightly higher than that of the control class. The distribution of students' achievement levels was then grouped into two categories, namely high and low, as presented in **Table 2**.

Table 2. Categories of Pretest Learning Outcome Scores

Category	Statistic	Experiment	Control
High	N	10	8
	Percent	48%	38%
	Mean	82.80	81.50
	Std. Dev	2.70	2.07
Low	N	11	13
	Percent	52%	62%
	Mean	70.91	64.92
	Std. Dev	4.76	6.36

Source: Research 2025

The experimental class consisted of 10 students with high learning outcomes and 11 students with low learning outcomes, while the control class consisted of 8 students categorized as high and 13 students categorized as low. Although the experimental class showed a better mean score, the majority of students in both classes were still in the low category. The distribution of learning outcome data was tested using the Shapiro–Wilk normality test with the assistance of the SPSS application. The results of the normality test showed significance values of 0.365 for the experimental class and 0.141 for the control class. Both values were greater than the 0.05 threshold; therefore, the data from both groups are declared to be normally distributed.

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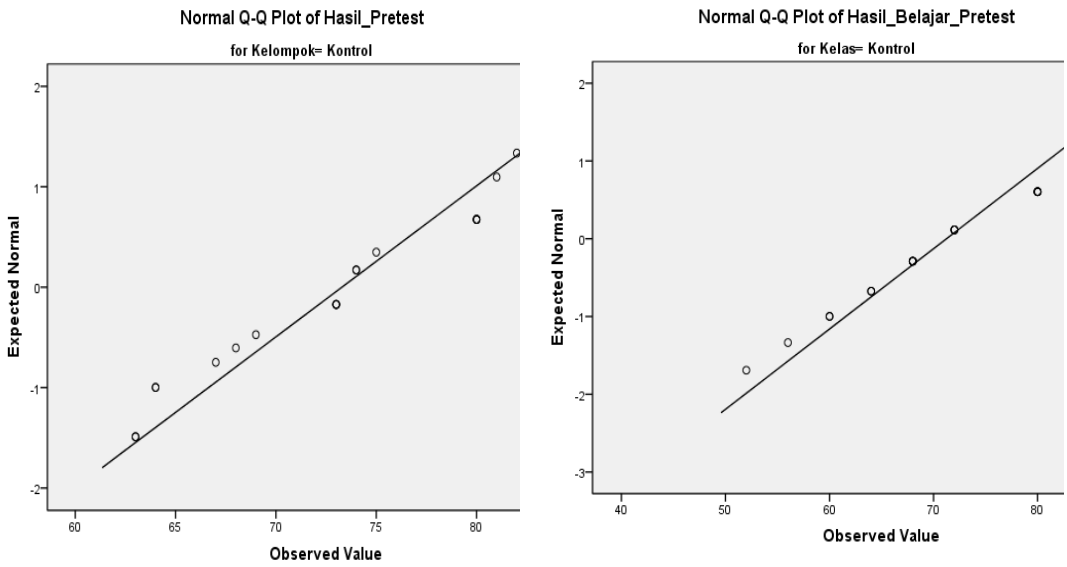

Figure 2. Normality Q–Q Plot Graph of Pretest Learning Outcome Scores
Source: Research 2025

This distribution is illustrated in **Figure 2**, where the points on the Q–Q Plot graph tend to follow the diagonal line. This pattern indicates that the students' learning outcome data meet the assumption of normality. Variance homogeneity testing was conducted to ensure equality of variances between the two groups prior to inferential analysis. The results of the homogeneity test showed a significance value of 0.185. This value is greater than the minimum threshold of 0.05, indicating that both groups have homogeneous variances. These findings confirm that the learning outcome data from the experimental class and the control class can be further analyzed using parametric statistical approaches.

Posttest Results of Learning Motivation

The posttest of learning motivation was conducted after the learning intervention was implemented in each class. The experimental class received treatment in the form of the implementation of the cooperative learning model of the make-a-match type supported by flashcard media in Pancasila Education learning activities. The control class was given the material through the application of conventional methods without the use of interactive learning models or supporting media. The instrument used at this stage was the same as in the pretest, namely, a validated learning motivation questionnaire. The measurement results indicate that the average motivation score of students in the experimental class reached 82.95, while the control class obtained an average score of 77.71.

Table 3. Categories of Posttest Learning Motivation Scores

Category	Statistic	Experiment	Control
High	N	14	8
	Percent	67%	38%
	Mean	85.71	82.50
	Std. Dev	3.50	1.31
Low	N	7	13
	Percent	33%	62%

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Category	Statistic	Experiment	Control
	Mean	77.43	74.77
	Std. Dev	1.27	2.39

Source: Research 2025

The data in **Table 3** indicate that students' motivation in the experimental class increased more significantly than in the control class after the treatment was administered. Based on the predetermined score ranges, the classification of students' motivation levels in the experimental class consisted of 14 students in the high motivation category and 7 students in the low motivation category, while in the control class, there were 8 students with high motivation and 13 students with low motivation. This composition shows that the majority of students in the experimental class were in the high motivation category (67%), whereas most students in the control class were in the low category (62%). Normality testing of the posttest motivation data was conducted to ensure that the data distribution met parametric requirements. The results of the Shapiro–Wilk test showed significance values of 0.083 for the experimental class and 0.130 for the control class. Both values are above the minimum threshold of 0.05, indicating that the data in each group are normally distributed.

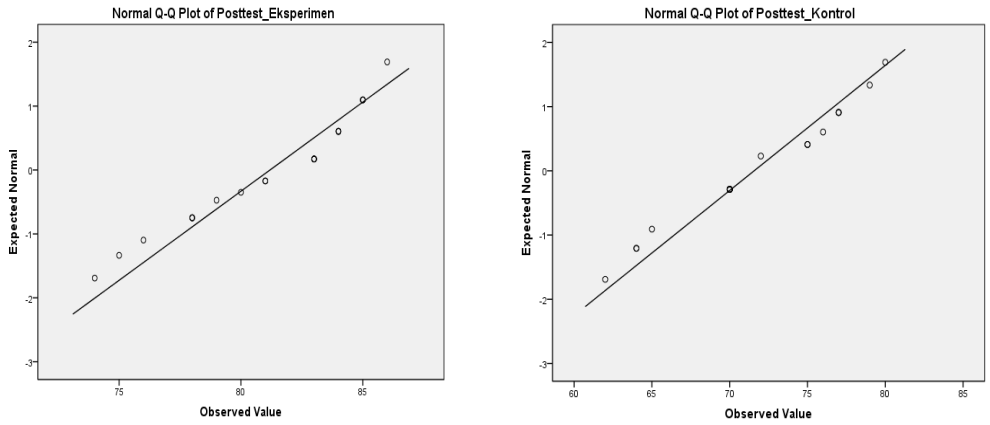

Figure 3. Normality Q–Q Plot Graph of Posttest Learning Motivation Scores
Source: Research 2025

The Q–Q Plot visualization in **Figure 3** further confirms this result, where the data points appear aligned and consistently follow the diagonal line. Variance stability between groups was tested using a homogeneity test. A significance value of 0.784 was obtained from the analysis, and this value exceeds the minimum criterion of 0.05. Based on these results, it can be concluded that the data from both classes have homogeneous variances. All prerequisites for further statistical analysis, in terms of both distribution and homogeneity, have been fulfilled at the posttest motivation stage.

Posttest Results of Learning Outcomes

The posttest evaluation of learning outcomes was conducted to measure students' final achievement after the learning process with different treatments in each class. The posttest results in the cognitive domain show that the average cognitive learning outcome score of students in the experimental class was recorded at 84.76, while in the control class it was 78.29. These results indicate that students' conceptual understanding of Pancasila Education material was higher in the group that participated in learning using the make-a-match model and flashcard media. The classification of learning outcomes in the cognitive

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domain is presented in **Table 4**, showing that the experimental class consisted of 15 students in the high category and 6 students in the low category. The control class recorded 9 students with high learning outcomes and 12 students in the low category. This composition indicates that 71% of students in the experimental class were in the high category, whereas only 43% of students in the control class reached this category.

Table 4. Categories of Posttest Cognitive Learning Outcome Scores

Category	Statistic	Experiment	Control
High	N	15	9
	Percent	71%	43%
	Mean	88.80	82.67
	Std. Dev	6.45	6.00
Low	N	6	12
	Percent	29%	57%
	Mean	74.67	74.33
	Std. Dev	2.07	3.60

Source: Research 2025

Measurement of learning outcomes in the affective domain was conducted. The average score achieved by students in the experimental class was 81.43, while the control class attained an average score of only 67.14. These results indicate an improvement in attitudes and value-related aspects associated with Pancasila learning in the experimental class. The categories of affective achievement are presented in **Table 5**, showing that 14 students in the experimental class were classified in the high category and 7 students in the low category. In the control class, only 3 students reached the highly effective category, while the remaining 18 students were classified in the low category. This distribution further strengthens the assumption that there are differences in the effects of the treatment on students' learning attitudes.

Table 5. Categories of Posttest Affective Learning Outcome Scores

Category	Statistic	Experiment	Control
High	N	14	3
	Percent	67%	14%
	Mean	84.14	80.67
	Std. Dev	2.77	1.15
Low	N	7	18
	Percent	33%	86%
	Mean	76.00	64.89
	Std. Dev	2.00	4.66

Source: Research 2025

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The average posttest psychomotor score of students in the experimental class was 80.76, while the control class achieved an average score of 74.57. These results indicate that students' skills in demonstrating practice-based learning activities developed more effectively through an interactive cooperative learning model. A total of 14 students in the experimental class were classified in the high category, and 7 students in the low category. Different results were observed in the control class, which recorded only 5 students in the high category, while 16 students fell into the low category. This difference in distribution suggests a tendency that the use of the make-a-match learning model supported by visual media contributes to a more optimal improvement of psychomotor skills.

Hypothesis Testing

The first hypothesis testing was conducted to determine differences in students' learning outcomes between the two treatment groups, namely learning using the make-a-match model assisted by flashcard media and the conventional method.

Table 6. Results of the ANOVA Test for the Cognitive Domain

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	493.714[a]	1	493.714	8.786	.005	.180
Intercept	277834.667	1	277834.667	4944.515	.000	.992
Model Pembelajaran	493.714	1	493.714	8.786	.005	.180
Error	2247.619	40	56.190			
Total	280576.000	42				
Corrected Total	2741.333	41				

a. R Squared = .180 (Adjusted R Squared = .160)

Source: Assessment 2025

Based on the results of the two-way ANOVA test (see **Table 6**) on posttest learning outcomes in the cognitive domain, an F-calculated value of 8.786 was obtained with a significance value of 0.005. This value is smaller than the significance level of 0.05 and greater than the F-table value of 3.23; therefore, the decision is to reject H_0 and accept H_a. These findings indicate that the make-a-match learning model supported by flashcard media has a significant effect on improving students' learning outcomes in the cognitive domain. Further support is shown by the difference in mean scores, namely 84.762 for the experimental class and 77.905 for the control class. These values demonstrate that the implementation of a cooperative learning model with visual aids is able to strengthen students' cognitive achievement. The subsequent hypothesis testing was then conducted on learning outcomes in the affective domain.

Table 7. Results of the ANOVA Test in the Affective Domain

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2142.857[a]	1	2142.857	59.289	.000	.597
Intercept	231771.429	1	231771.429	6412.648	.000	.994

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Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Model_Pembelajaran	2142.857	1	2142.857	59.289	.000	.597
Error	1445.714	40	36.143			
Total	235360.000	42				
Corrected Total	3588.571	41				

a. R Squared = .597 (Adjusted R Squared = .587)

Source: Assessment 2025

Based on **Table 7**, an F_{count} value of 59.289 was obtained with a significance value of 0.000. This value is lower than 0.05 and is statistically significant, as the calculated F_{count} value is far greater than the F_{table}. Therefore, the decision is to reject H_0 and accept H_a. This result indicates that the make-a-match model supported by flashcard media has a positive effect on strengthening attitudes and character values within the context of Pancasila Education learning. The comparison of mean scores presented in Table 7 shows that the experimental group achieved an average score of 81.429, while the control group reached only 67.143. This difference reinforces the finding that interactive learning activities accompanied by concrete visualizations are able to foster emotional engagement and positive attitudes among students throughout the learning process.

The results of the ANOVA calculation indicate that the obtained F_{count} value is 21.041 with a significance value of 0.000. This result meets the criteria for rejecting H_0 and accepting H_a, as the calculated F_{count} value is greater than the F_{table} and the significance level is below 0.05. This significant difference demonstrates that students who received instruction through the make-a-match approach supported by flashcard media exhibited more developed psychomotor abilities compared to students who participated in conventional learning. Empirical support for this finding is reflected in the average psychomotor learning outcomes, where the experimental group achieved a mean score of 80.762, while the control group attained only 74.571.

This advantage indicates that the card-pairing activity–based learning approach is not only effective in the cognitive and affective domains, but also provides meaningful reinforcement of students' practical skills and motor movements. The second and third hypothesis tests were conducted to evaluate the effect of the make-a-match model supported by flashcard media on students' learning outcomes when viewed from the level of learning motivation. The second hypothesis focused on students with high motivation, while the third hypothesis addressed students with low motivation. The analysis was carried out using a two-way ANOVA approach with the assistance of SPSS, after ensuring that the data met the assumptions of normality and homogeneity of variance.

The test results in the cognitive domain showed an F_{count} value of 7.049 with a significance level of 0.012, which is lower than the significance threshold of 0.05 and higher than the F_{table} value of 3.23. Based on these results, the decision was to reject H_0 and accept H_a, indicating a significant effect of the learning model on cognitive learning outcomes based on differences in learning motivation. In the group of students with high motivation, the average cognitive learning outcome reached 81.43 when using the make-a-match model, while the conventional method only achieved an average of 80.50. Meanwhile, for the low-motivation group, the average score using the make-a-match model was 76.31, which was higher than the 75.43 obtained by the control group. These findings confirm that cooperative learning with a visual approach has advantages for both highly motivated and low-motivated students in the cognitive domain.

Analysis of the second and third hypotheses in the affective domain showed an F_{count} value of 21.041 with a significance level of 0.000, which again indicates statistical significance. This value supports the decision to reject H_0 and accept H_a. Differences in the average affective scores were observed across groups. The

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high-motivation group using the make-a-match model recorded an average score of 82.57, while the control group achieved only 69.25. In the low-motivation group, the average affective score of students in the experimental group was 79.14, considerably higher than that of the control group at 65.85. These data indicate that the use of interactive visual media through flashcards provides positive stimulation for the development of attitudes and character values in both highly motivated and low-motivation students.

In the psychomotor domain, the test results showed an F_{count} value of 14.903 with a significance level of 0.004. This value is higher than the F_{table} and is statistically significant. Therefore, H_0 was rejected, and H_a was accepted, meaning that the learning model has a meaningful effect on students' psychomotor abilities based on their level of motivation. The detailed average scores show that students with high motivation who received the make-a-match model treatment achieved an average score of 80.95, higher than the conventional group, which only reached 78.96. Likewise, among students with low motivation, the average psychomotor score in the experimental group was 76.35, compared to 74.51 in the control group. These findings confirm that the cooperative learning model based on paired visual activities is highly effective in developing students' motor skills and practical abilities in a comprehensive manner.

The testing of the fourth hypothesis aims to determine whether there is an interaction between the make-a-match learning model and the level of learning motivation on students' learning outcomes. The proposed hypothesis is as follows:

- H_0: There is no interaction between the make-a-match learning model and students' learning motivation on students' learning outcomes
- H_a: There is an interaction between the make-a-match learning model and students' learning motivation on students' learning outcomes

The hypothesis test was conducted using a two-way ANOVA with the assistance of SPSS software. The results of the interaction test covered the three domains of students' learning outcomes. It was found that the F_{count} value for learning outcomes in the cognitive domain was 7.049, in the affective domain was 21.041, and in the psychomotor domain was 14.903. All three values were greater than the F_{table} value of 3.23. In addition, the respective significance values of 0.012 (cognitive), 0.000 (affective), and 0.004 (psychomotor) were also smaller than the significance level of 0.05. These results provide sufficient grounds to conclude that H_0 is rejected and H_a is accepted.

These findings indicate that there is a significant interaction between the make-a-match learning model and students' learning motivation on learning outcomes. The combination of an active and enjoyable learning strategy with students' internal motivation levels results in significant improvements in cognitive achievement, attitudes, and skills. The make-a-match model, which utilizes flashcard media, has proven effective in providing positive stimuli for highly motivated students, as demonstrated by enthusiastic participation, willingness to engage in discussions, and eagerness to understand the material. This interaction also plays an important role in supporting students with low motivation. A learning process that is visual, interactive, and collaboration-based has been shown to attract attention and foster students' emotional and physical engagement, thereby indirectly enhancing their learning achievements. This indicates that learning effectiveness is influenced not only by the methodological approach used but also by the extent to which the strategy can synergize with students' affective characteristics, particularly learning motivation.

Discussion

The test results prove that the cooperative learning model of the make-a-match type assisted by flashcard media has a significant effect on students' learning outcomes. The average learning outcomes of students who used the make-a-match model assisted by flashcard media were higher compared to those who used

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conventional methods. This advantage is in line with findings that card-based cooperative models are able to create an active and competitive learning atmosphere and improve learning achievement (Maknun *et al*., 2024; Yatimah *et al*., 2024). The use of the make-a-match strategy has also been shown to enhance conceptual understanding through matching activities that stimulate students' memory. The visualization of material through flashcard media strengthens cognitive engagement and facilitates the process of concept internalization (Fitriani *et al*., 2021). The make-a-match model, assisted by flashcard media, not only improves the cognitive domain, but also has a positive impact on the affective and psychomotor dimensions. Collaborative and interactive activities in this learning approach are able to build students' intrinsic motivation through meaningful and enjoyable learning experiences (Sambawarana, 2022).

Flashcards, as a simple visual medium, help students recognize information concretely, improve learning focus, and stimulate interaction among students during the activities (Alvani *et al*., 2024). In addition to supporting critical and analytical thinking skills, the integration of the make-a-match model and flashcards is considered relevant to the objectives of Pancasila Education learning, particularly in shaping an understanding of norms and values in daily life (Novita & Sulistiyana, 2023). Based on this, the make-a-match model assisted by flashcard media is highly recommended for use in teaching national values. The results of the hypothesis test indicate that learning motivation has a significant effect on students' learning outcomes across all domains. The average learning outcomes of students with high motivation who were taught using the make-a-match model assisted by flashcard media were higher than those of students with low motivation. This finding is consistent with studies showing that learning motivation plays an important role in encouraging cognitive engagement, increasing interest, and maintaining focus during the learning process (Irfan & Savitri, 2022; Juliani *et al*., 2021).

The difference in achievement appears significant when highly motivated students participate in an active learning model, as motivation strengthens their mental and emotional readiness to receive the material. Motivation becomes an important aspect that determines learning effectiveness, particularly in Pancasila Education, which requires emotional and value-based engagement. Students with high motivation are characterized by enthusiasm for learning, consistent attendance, and eagerness to complete assignments. These characteristics have a positive impact on achieving more optimal learning outcomes (Murdaya *et al*., 2021). In contrast, students with low motivation tend to experience difficulties in following the lessons, are less active in class discussions, and demonstrate less optimal academic performance (Efriyenef & Fitria, 2021). An enjoyable learning model, such as making a match, has been proven to help low-motivation students remain engaged and achieve improved learning outcomes. Teachers are expected to foster students' intrinsic motivation by designing relevant and meaningful learning experiences, as learning motivation makes a significant contribution to students' academic success (Budiyono *et al*., 2023).

The results of the hypothesis testing indicate that there is an interaction between the make-a-match learning model and learning motivation on students' learning outcomes. The presence of this interaction shows that the effectiveness of the learning model increases significantly when applied to students with a high level of learning motivation. This condition reinforces the principle that the achievement of learning outcomes is simultaneously influenced by instructional strategies and students' affective conditions (Habsy *et al*., 2023). The make-a-match learning model assisted by flashcard media is able to optimize learning outcomes through structured, visual, and collaborative learning experiences. Students with high learning motivation tend to make maximum use of learning activities due to the alignment between instructional stimuli and affective readiness. The make-a-match model assisted by flashcard media is also able to foster engagement among low-motivation students through visual approaches and enjoyable learning activities, thereby significantly improving learning outcomes (Maulana, 2025). Therefore, the combination of the make-a-match approach and efforts to enhance learning motivation has been proven to have a positive effect on learning outcomes in Pancasila Education.

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CONCLUSION

This study concludes that the cooperative learning model of the make-a-match type assisted by flashcard media has been proven effective in improving students' learning outcomes in the cognitive, affective, and psychomotor domains. The findings indicate that both highly motivated and low-motivated students experienced improvements in learning outcomes when participating in learning using this model, compared to conventional methods. The interaction between the learning model and learning motivation also contributes significantly to students' academic achievement. Based on these results, it is recommended that teachers apply the make-a-match model assisted by flashcard media as an alternative learning strategy that is adaptive to the needs of students with different motivational characteristics. Further research is recommended to evaluate the application of this model in different subjects, at higher levels of education, and by integrating up-to-date technology-based digital media such as augmented reality or gamification to sustainably enhance student engagement and learning outcomes.

AUTHOR'S NOTE

The author declares that there are no conflicts of interest regarding the publication of this article. The author also affirms that all data and content in the article are free from plagiarism.

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