

THE EFFECT OF THE STAD-TYPE COOPERATIVE LEARNING MODEL THROUGH THE PAIKEM APPROACH ON THE CHARACTER AND LEARNING OUTCOMES OF FOURTH-GRADE STUDENTS AT SDN

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ABSTRAK

This study aims to determine the effect of the STAD-type cooperative learning model through the PAIKEM approach on the character and learning outcomes of fourth-grade students at SDN 143 Inpres Leko. The research employed a quantitative method with a Quasi-Experimental Design, involving 40 students as the sample who were divided into an experimental group and a control group. Data were collected through observation sheets, learning outcome tests, and documentation, and were analyzed using descriptive and inferential statistics. The results showed that the implementation of the STAD learning model through the PAIKEM approach was carried out effectively and was able to enhance students' character, making them more active, creative, disciplined, responsible, and confident. In addition, the application of this model had a positive effect on students' learning outcomes, as indicated by the improvement in posttest scores compared to pretest scores. Overall, this learning model not only improves students' academic abilities but also supports character development. Based on these findings, the researcher recommends that teachers consistently implement the STAD model with the PAIKEM approach in teaching and learning activities, schools provide training and supporting facilities for teachers, and parents support cooperative-based learning at home to strengthen students' character and learning outcomes.

1. INTRODUCTION

Education is all efforts and all efforts to make society able to develop the potential of students to have religious spiritual strength, self-control, personality, have intelligence, noble character, and have the necessary skills as members of society and citizens. (Sistriani et al., 2023).

Education is a conscious and well-planned effort to create a learning atmosphere and learning process that enables students to actively develop their potential in order to possess religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed for themselves, society, the nation, and the state.(Kholisoh et al., 2023).

Education is also a deliberate and systematic effort to create an enjoyable learning environment so that students can actively develop their potential to gain religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed for themselves and society. Education includes the teaching of specific skills as well as deeper, intangible aspects such as the transmission of knowledge, judgment, and wisdom (Januaria & Bau, 2025).

In the modern era like today, everything is demanded to be fast and sophisticated. All things are required to develop with the times, as well as education in Indonesia which is considered to have to be improved immediately so as not to lag behind other neighboring countries in Southeast Asia. (Perkembangan et al., 2020)

In the Qur'an, Surah At-Taubah verse 122 explains the importance of education:

وَمَا كَانَ الْمُؤْمِنُونَ لِيَنفِرُوا كَافَّةً ؕ قُلْ لَّوْلَئِي نَفَرَ مِنْ كُلِّ فِرْقَةٍ مِّنْهُمْ طَائِفَةٌ لِّيَتَفَقَّهُوا فِي الدِّينِ وَلِيُنذِرُوا قَوْمَهُمْ إِذَا رَجَعُوا إِلَيْهِمْ لَعَلَّهُمْ يَحْذَرُونَ

“It is not appropriate for the believers to go forth (to battle) all at once. Why should not a group from every community among them remain behind to gain understanding in religion and to warn their people when they return to them, so that they may be cautious?”

The verse above explains the necessity of bringing about positive change within oneself. Allah SWT commands all His people to continue seeking knowledge. Through knowledge, humans are able to recognize and affirm the power and sovereignty of Allah SWT.

In its dynamics, character education cannot ignore the condition of students as the primary target of education. Various psychological aspects that potentially influence students play a significant role in achieving the goals of character formation. One of these aspects is students' moral development, which supports the achievement of character education objectives (Sains & Ipa, 2024).

Moral attitudes and behaviors can be developed through education and the inculcation of values/norms that are carried out in an integrated manner in lessons and activities carried out by children in families and schools. (Bimbingan et al., 2014).

Character education is very important because it is a process of guiding students to become whole individuals with character in the dimensions of heart, mind, body, and feeling. Through appropriate methodologies and strategies implemented by teachers, effective character education can be achieved. (Tinggi et al., 2019).

Character education should be applied from an early childhood because at an early age it is proven to be very decisive for children's ability to develop their potential. Meanwhile, schools are one of the institutions responsible for character formation, because the contribution and role of

teachers here are very dominant. (Yogyakarta et al., n.d.). Schools are required to play their roles and responsibilities to instill and develop good values and help students shape and build their character with good values. (Sudrajat, n.d.). The system of instilling character values is carried out continuously and continuously until there is a habituation to children's attitudes and behaviors according to normal values in society. (Setiardi, 2017).

The moral formation of children cannot be achieved if it is not followed by character education that can instill moral values. (Gowasa et al., 2024). Moral education for children can change children's behavior, so that when they are adults, they are more responsible and respectful of others and are able to face the challenges of a rapidly changing era. (Paulina, n.d.). Character development can be done in the world of education, where basically education indeed directs children to develop the potential that exists in them, as well as training children how to socialize in their community, as well as cultivating their character. (Aryati et al., 2023)

Based on field observations, problems were found in Grade IV of SDN 143 Inpres Leko, where many students still lack discipline and responsibility. Character-related problems require serious attention from both the school and families to shape students' character. Discipline and responsibility among students need to be improved. It was also found that students' Indonesian language learning outcomes and character development were not yet optimal. Out of 20 students, only 9 students (45%) achieved the minimum mastery criteria (KKTP), while 11 students (55%) did not achieve learning mastery.

This relatively high rate of incomplete learning reflects problems in the classroom learning process. It indicates that some students still experience difficulties in understanding the subject matter, developing language skills, and applying character values in daily learning activities. In addition, the teaching methods used may not fully address students' learning needs comprehensively, both cognitively and affectively.

From the teacher's perspective, the lack of variation in teaching methods has not yet accommodated the diverse characteristics and learning needs of students. Teachers tend to use approaches that do not actively engage students, resulting in low motivation and limited involvement in the learning process. Furthermore, the integration of character values such as responsibility, discipline, and cooperation has not been effectively embedded in Indonesian language learning. Consequently, students face difficulties not only in cognitive aspects but also in developing attitudes and behaviors aligned with character values.

Considering these conditions, a learning approach that addresses students' needs comprehensively, both cognitively and affectively, is required. One alternative is the implementation of the STAD learning model through the PAIKEM approach to improve character and learning outcomes of Grade IV students at SDN 143 Inpres Leko. As a cooperative learning model, STAD is believed to enhance student participation in groups, encourage positive interaction, and build character through cooperation and group responsibility.

Through the implementation of the PAIKEM approach combined with the STAD model, it is expected that the Indonesian language learning process in Grade IV will not only improve students' academic achievement but also foster essential character values in daily life.

PAIKEM is a student-centered learning approach. It allows students to experience, internalize, and draw lessons from their own experiences. Learning outcomes become part of their thoughts, feelings, and experiences, making them more meaningful and lasting because students are encouraged to be creative. In this method, the teacher acts as a facilitator who assists students in learning. Rather than merely receiving knowledge from the teacher, students gain knowledge through their own experiences. PAIKEM can be defined as an approach to teaching used in conjunction with specific methods and various instructional media, accompanied by classroom arrangements that make learning active, innovative, creative, effective, and enjoyable (Raya, 2025).

The advantages of the PAIKEM method include providing a student-centered curriculum linked to students' interests, needs, and intelligence; encouraging students to make their own decisions and take responsibility for their learning success; and enabling logical and natural connections between subjects and topics. (Saluza, 2015).

STAD is combined with the PAIKEM approach to ensure that students become active, innovative, and enthusiastic in achieving learning objectives. Students not only understand academic material but also develop socially and emotionally. They learn to think critically, collaborate, and respect differences. STAD emphasizes cooperation among students in heterogeneous small groups, encouraging positive social interaction, mutual assistance, and shared responsibility for learning achievement. Meanwhile, the PAIKEM approach directs learning to be more innovative and creative, providing space for students to actively participate and think critically in a flexible learning environment. By combining both approaches, teachers can create learning that focuses not only on outcomes but also on the process, making students more motivated, confident, and engaged. At the elementary school level, this combination is particularly appropriate because it aligns with the characteristics of young learners who enjoy learning while playing and collaborating with peers. Therefore, integrating the STAD model with the PAIKEM approach is an effective strategy to improve the quality of classroom learning.

The PAIKEM approach emphasizes active, innovative, creative, effective, and enjoyable learning, encouraging students to participate more, explore, and feel comfortable in the learning process. The STAD model trains cooperation in groups, social responsibility, and both individual and group achievement—elements that are highly relevant to elementary students, who learn most effectively through collaboration and direct experience.

Based on the explanation above, the researcher is interested in conducting a study entitled: **“The Effect of the STAD Type Cooperative Learning Model through the PAIKEM Approach on Character and Indonesian Language Learning Outcomes of Grade IV Students at SDN 143 Inpres Leko.”**

2. METHOD

This study employed a quantitative approach using a quasi-experimental design (Quasi-Experiment), which does not involve random assignment of subjects. The purpose of this research was to determine the effect of the PAIKEM method and the STAD learning model on the character and learning outcomes of Grade IV students at SDN 143 Inpres Leko. The

study was conducted from August 25 to September 30, 2025, at the school to ensure that all research stages could be implemented without disrupting regular learning activities.

The independent variable in this study was the implementation of the PAIKEM method and the STAD learning model, which aimed to improve students' learning outcomes, motivation, cooperation, social responsibility, and critical thinking skills. The dependent variables were students' character and Indonesian language learning outcomes. The research design used was a Quasi-Experimental Design with a Non-equivalent Control Group Design, in which the experimental group received the treatment while the control group did not. Both groups were given a pretest and a posttest as measurement instruments.

The population of this study consisted of all Grade IV students at SDN 143 Inpres Leko, totaling 40 students. The entire population was used as the sample (total sampling), divided into 20 students in the experimental group and 20 students in the control group. The research instruments included observation sheets to assess the learning process, pretest and posttest instruments consisting of 20 multiple-choice questions to measure learning outcomes, and documentation to provide evidence of activities conducted during the research.

The research procedure included a preparation stage—comprising consultation, observation, and preparation of teaching modules—and an implementation stage, which involved group formation, administration of the pretest, application of the treatment to the experimental group, and administration of the posttest. The data were analyzed using descriptive statistics to describe the data, a homogeneity test to ensure equal variances, and an independent t-test to determine significant differences between groups. The t-test result with $\text{Sig.} < 0.05$ indicated that the implementation of the PAIKEM method and the STAD learning model had a significant effect on students' character and learning outcomes.

3. RESULTS AND DISCUSSION

a. Research Results

1) Implementation of the STAD Cooperative Learning Model through the PAIKEM Approach on Character and Learning Outcomes of Grade IV Students at SDN Inpres Leko

The STAD (Student Teams-Achievement Divisions) cooperative learning model implemented through the PAIKEM approach (Active, Innovative, Creative, Effective, and Enjoyable Learning) can improve students' learning outcomes because both methods complement each other in encouraging active student involvement. STAD emphasizes teamwork in heterogeneous groups, where each member is responsible not only for their own understanding but also for the team's success. This condition motivates students to study more seriously and to teach concepts to peers who have not yet understood the material.

a) Teacher Observation

The following table presents the teacher observation sheet in implementing the STAD cooperative learning model through the PAIKEM approach to develop the character of Grade IV students at SDN 143 Inpres Leko.

Table 3.1 Teacher Observation

	Per/I	Per/II	Per/III	Per/IV	Per/V	Per/VI
Score	<i>Pre</i> <i>Test</i>	5/16	8/16	10/16	14/16	<i>Post</i> <i>Test</i>
Obtained/Total						
Score						
Percentase (%)		31%	50%	63%	88%	
Category		Poor	Poor	Vair	Very Good	

Source: Processed research data (2025)

Based on the results of teacher activity observations conducted over six meetings using the STAD cooperative learning model through the PAIKEM approach, there was a significant improvement in the teacher's ability to manage the learning process. At the first meeting, the teacher obtained a score of 5 out of 16 indicators (31%), categorized as poor. This was understandable because the teacher was still adapting to the implementation of the STAD model through PAIKEM.

At the second meeting, the score increased to 8 out of 16 (50%). Although still categorized as poor, the improvement indicates that the teacher began to understand the learning steps and showed better ability to create an enjoyable learning atmosphere and encourage active student participation.

b) Student Observation

The following table presents the student observation sheet in implementing the STAD cooperative learning model through the PAIKEM approach.

Table 3.2 Student Observation

	Per/I	Per/ II	Per/III	Per/IV	Per/IV	Per/ VI
Skor	<i>Pre</i> <i>Test</i>	5/16	10/16	11/16	15/16	<i>Post</i> <i>Test</i>
Perolehan/Skor						
Persentase (%)		31%	63%	69%	94%	
Kategori		Kurang	Cukup	Cukup	Sangat	
		Baik	Baik	Baik	baik	

Source: Processed research data (2025)

Based on the results of observations of student activities presented in Table 4.2, it can be seen that there was a fairly significant increase in each learning meeting using the cooperative learning model type Student Teams Achievement Division (STAD) through the

PAIKEM approach (Active, Innovative, Creative, Effective, and Fun Learning). At the initial stage, namely the pre-test before the treatment was given, the students' score only reached 5 out of a maximum score of 16 or equivalent to 31%. These results indicate that student activities and learning outcomes were still in the "poor" category, meaning that most students had not been able to demonstrate active involvement in the learning process, either in the form of participation in group discussions, understanding of the material, or the ability to express opinions independently. This condition also reflects that initially students tended to be passive, lacked self-confidence, and were still accustomed to conventional learning patterns that emphasized teacher lectures.

The following are the research data from the observation results of students in the control class and the experimental class:

1) Control Class

Table 3.3 Observation Results of Control Class Student

Student	Cognitively			Psychomotor			Affective		
	I	II	III	I	II	III	I	II	III
Adelia Rahma	-	-	-	-	-	-	-	-	-
Nurul Fadilah	-	-	-	-	-	-	-	-	-
Rizky Ahmad Fadli	-	✓	-	✓	✓	-	✓	-	✓
Muhammad Alfian Riski	✓	-	-	-	-	✓	-	✓	✓
Razzaq Ridho Qalbo Bm	-	-	-	✓	✓	-	✓	✓	-
Ahmad Rahil	✓	-	✓	-	-	-	-	✓	-
Nur Khalifah Angraeni	-	✓	-	-	✓	-	✓	✓	-
Ahmad Ardiansyah	✓	-	-	✓	-	-	-	-	-
Al Fauzan	-	-	-	-	-	-	-	✓	-
Aqila Zahrani Haris	-	-	-	-	-	-	-	-	-
Muarifa Amin	-	-	-	-	-	-	-	-	-
Muh Abisar zuhair Sr	-	-	-	-	-	-	-	-	-
Muh Alif Ibrahim	✓	-	✓	-	✓	-	-	✓	-
Muh. Al-fikri iksan	-	-	-	-	-	-	-	-	-
Muh Ridho Akmal	-	-	-	-	-	✓	-	✓	-
Muh Zaahir Aldhabit	✓	-	-	✓	-	-	-	-	-
Muhammad Iswar	-	-	-	-	-	-	-	-	-
Nur azisah putriani	-	-	-	✓	-	-	✓	-	✓
Sitti Khadijah	-	-	-	-	-	-	-	✓	-
Muhammad Fahri	-	-	-	-	-	-	-	-	-
Expected Score	20	20	20	20	20	20	20	20	20
Percentage	25%	10%	10%	25%	20%	10%	20%	40%	15%
Average	15%			18%			25%		
Category	Very low			Very low			Low		

The table above shows that in the control class, the observation results for the cognitive aspect obtained an average score of 15%, the psychomotor aspect 18%, and the affective aspect 25%. This indicates that student learning activities in the control class before being given treatment in the form of applying the STAD cooperative learning method with the

PAIKEM approach were classified as very low.

2) Experimental Class

Table 3.4 Observation Results of Experimental Class Students

Student	Cognitive			Psychomotor			Affectively		
	I	II	III	I	II	III	I	II	III
Amirah Amiruddin	-	✓	✓	✓	✓	✓	✓	✓	✓
Ilham	-	✓	✓	✓	✓	✓	✓	✓	✓
Dinda sinara	✓	✓	-	✓	-	✓	✓	✓	✓
Asrianti Nur Rahman	✓	-	✓	✓	-	✓	-	✓	✓
Andi Nur Asyifa	✓	-	✓	✓	✓	-	-	✓	✓
Izza Aulia Najwa	✓	-	✓	✓	✓	✓	✓	-	-
A. Alif Afrianto	✓	✓	✓	-	✓	✓	-	-	✓
Maya Ariani	✓	✓	✓	✓	-	-	✓	-	-
Muh. Ridwan	✓	✓	✓	✓	✓	-	✓	✓	✓
Muh. Anugrah Saputra	✓	✓	✓	✓	✓	✓	✓	✓	✓
Syifa Al Khalifatul R	✓	✓	✓	✓	✓	✓	✓	✓	✓
Muh. Fais Jaya Saputra	✓	✓	✓	✓	✓	✓	✓	✓	✓
Muh. Haikal	✓	✓	✓	✓	✓	✓	✓	✓	✓
Muh. Aldrian Dermawan	✓	✓	✓	✓	✓	-	✓	✓	✓
Muh. Taufik	✓	-	✓	✓	✓	✓	✓	✓	✓
Muhammad harun Akbar	✓	✓	✓	✓	-	✓	✓	✓	✓
Muhammad Irsyad	✓	✓	-	✓	✓	✓	✓	✓	✓
Muhammad Ismail	✓	✓	✓	-	✓	✓	✓	✓	✓
Sainuddin M	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nur Azizah	✓	✓	✓	✓	✓	✓	✓	✓	✓
Actual Score	18	16	18	18	16	16	17	17	18
Expected Score	20	20	20	20	20	20	20	20	20
Percentace	90%	80%	90%	90%	80%	80%	85%	85%	90%
Average	87%			83%			87%		
Category	Very good			Very good			Very good		

The table above shows that in the experimental class, the observation results for the cognitive aspect obtained an average score of 87%, the psychomotor aspect 83%, and the affective aspect 87%. This indicates that student learning activities in the experimental class after being given treatment through the application of the STAD cooperative learning method with the PAIKEM approach were classified as very good.

This is because the method encourages active participation of each student, increases interaction and discussion among group members, and facilitates deep conceptual understanding through cooperation and peer teaching. The PAIKEM approach emphasizes enjoyable, challenging, and motivating learning, so that students are more cognitively, affectively, and psychomotorically engaged.

2) The Effect of Implementing the STAD Cooperative Learning Model Through the PAIKEM Approach on the Character of Fourth-Grade Students at SDN 143 Inpres Leko.

The implementation of conventional learning without using the STAD cooperative learning model through the PAIKEM approach has not been able to foster positive character or produce optimal learning achievements in fourth-grade students of SDN 143 Inpres Leko, Maros Regency.

This shows that most students tended to disagree with statements reflecting attitudes of discipline, cooperation, responsibility, and honesty in learning activities. The low level of agreement with character indicators, such as the ability to cooperate, willingness to listen to friends' opinions, and punctuality in completing assignments, indicates that one-way learning has not been effective in building character values or increasing students' active involvement in the learning process. The following are the character results of the control and experimental classes:

Table 3.5 Character Results

Category	Control Class		Experiment Class	
	N	%	N	%
Very poor	5	25%	-	-
Poor	12	60%	-	-
Fair	1	5%	3	15%
Good	2	10%	7	35%
Very good	-	-	10	50%
Total	20	100%	20	100%

Based on the character results table above, there is a clear difference between the control and experimental classes. In the control class with 20 students, most students were in the very poor category (5 students, 25%), poor category (12 students, 60%), fair category (1 student, 5%), and good category (2 students, 10%). These data indicate that students' character in the control class tended to be low, so the implemented learning had not been able to optimally encourage character development. Meanwhile, the experimental class showed better character results; there were no students in the very poor or poor categories. In the fair category there were 3 students (15%), in the good category 7 students (35%), and in the very good category 10 students (50%). This condition indicates that the implementation of the STAD cooperative learning model through the PAIKEM approach has a positive influence on students' character formation. Thus, it can be concluded that the learning model applied in the experimental class is more effective in improving students' character.

3) The Effect of Implementing the STAD Cooperative Learning Model Through the PAIKEM Approach on the Learning Outcomes of Fourth-Grade Students at SDN 143 Inpres Leko.

Student learning outcome data in this study were obtained through a final test (post-test) given to students in the control and experimental classes. The following is the assessment of learning outcomes of students in both classes:

Table 3.6 Student Learning Outcomes

Category	Control		Experiment	
	N	%	N	%
Very poor	6	30%	0	0%
Poor	11	55%	2	10%
Vair	1	5%	4	20%
Good	2	10%	9	45%
Very good	0	0%	5	25%
Total	20	100	20	100



Figure 3.1 Learning Outcomes Graph

The figure above shows that most students in the control class, totaling 17 students (85%), had learning mastery classified as incomplete, while in the experimental class most students, totaling 18 students (90%), had learning mastery classified as complete.



Figure 3.2 Learning Mastery Graph

The table and graph above show that in the control class, most students (11 students, 55%) had learning outcomes classified as poor, while in the experimental class most students (9 students, 45%) had learning outcomes classified as good.

4) **The Effect of Implementing the STAD Cooperative Learning Model Through the PAIKEM Approach on the Character and Learning Outcomes of Fourth-Grade Students at SDN 143 Inpres Leko.**

a) **Frequency Distribution Test**

The frequency distribution test was used to determine student responses related to their character to examine how the STAD cooperative learning model through the PAIKEM approach affects character and learning outcomes of fourth-grade students of SDN 143 Inpres Leko, Maros Regency, in both the control and experimental classes. The following are the descriptive statistical test results:

Table 3.7 Descriptive Statistical Test Results		
	Control	Experiment
Mean Score	58.50	83.25
Maximun Score	85.00	100.00
Minimum Score	35.00	60.00
Standards Deviation	14.52	10.67
Range	25	20

Source: processed by researcher (2025)

Based on the descriptive statistical test results, the implementation of the STAD cooperative learning model through the PAIKEM approach has a positive effect on the learning outcomes of fourth-grade students of SDN 143 Inpres Leko. Students who participated in learning with this model obtained an average score of 83.25, higher than the control group which only scored 58.50. In addition, the maximum and minimum scores in the experimental group were also higher, namely 100.00 and 60.00, compared to the control group with scores of 85.00 and 35.00. These findings indicate that the application of the STAD model with the PAIKEM approach effectively improves student learning achievement significantly.

b) Normality Test

The normality test used in this study was the Shapiro-Wilk test because the number of respondents was fewer than 50. According to this test, data are said to be normally distributed if the significance value is greater than 0.05. The results are as follows:

Table 3.8 Normality Test

Shapiro-Wilk		
	Statistic	Df
Control	.962	20
Experiment	.961	20

Sumber: IBM SPSS Versi 26

Based on the Shapiro-Wilk normality test results, the significance value (Sig.) for the pre-test data was 0.590 and for the post-test data was 0.556, indicating that the data used in this study in both the experimental and control groups were normally distributed.

Table 3.9 Normality Test Results

Class	Sig	Description
Control	0.747	Normal
Experiment	0.448	Normal

Source: processed by researcher (2025)

The table above shows that the significance value of the control class is 0.747 (sig > 0.05) and the experimental class is 0.448 (sig > 0.05), indicating that the research data in both classes are normally distributed.

c) Paired Sample t-Test

The paired sample t-test was used to compare students' character in the control class with those in the experimental class. The STAD cooperative learning model through the PAIKEM approach is said to influence students' character if the sig value > 0.05.

The following are the results of the paired sample t-test to determine differences in student learning outcomes between those who received STAD cooperative learning treatment through the PAIKEM approach and those who did not:

Table 3.10 Paired Sample t-Test Results for Learning Outcomes

	Sig	t _{hitung}
Control Experiment	0.000	8.847

Sumber: IBM SPSS Versi 26

For the experimental group that received treatment through the implementation of the STAD cooperative learning model with the PAIKEM approach and the control group that did not receive the treatment, the significance value (Sig.) obtained was 0.000, which is smaller than the significance level $\alpha = 0.05$.

These results indicate a significant difference between the learning outcomes of students in

the experimental and control groups. Furthermore, the tcount value of 8.847 indicates that statistically there is a very strong influence of the implementation of the STAD cooperative learning model with the PAIKEM approach on student learning outcomes.

Thus, it can be concluded that the implementation of this learning model significantly improves student learning outcomes compared to students who did not receive similar treatment. These findings also indicate that the STAD model combined with the PAIKEM approach positively contributes to the development of students' academic potential, because learning does not only focus on mastery of material but also emphasizes active involvement, teamwork, social interaction, and independence in learning.

Table 3.11 Paired Sample t-Test Results

	Sig	T	Korelasi
Control Experiment	0.000	12.721	0.215

Source: processed by researcher (2025)

The table above shows that the significance value (sig) of the paired sample t-test is 0.000, with a tcount value (12.721) greater than ttable (1.734), and a correlation value of 0.215. These results indicate that there is a positive effect of implementing STAD cooperative learning through the PAIKEM approach on students' character.

The implementation of STAD cooperative learning through the PAIKEM approach has a positive effect on character formation because this method emphasizes cooperation, individual responsibility, and active participation in the learning process. In the STAD model, students work in heterogeneous groups to help each other understand the lesson material, thereby fostering mutual respect, discipline, and responsibility for group learning outcomes.

The PAIKEM approach, which emphasizes active, innovative, creative, effective, and enjoyable learning, further strengthens students' motivation and engagement in the learning process. Through this approach, characters such as honesty, independence, and social awareness can develop naturally through meaningful interaction and learning experiences.

d) MANOVA Test

The MANOVA test was used in this study to simultaneously determine the effect of implementing the STAD Cooperative Learning Model through the PAIKEM approach on students' learning outcomes and character. The following are the MANOVA test results conducted by the researcher:

		Multivariate Tests ^a				
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.994	3078.490 ^b	2.000	37.000	<.001
	Wilks' Lambda	.006	3078.490 ^b	2.000	37.000	<.001
	Hotelling's Trace	166.405	3078.490 ^b	2.000	37.000	<.001
	Roy's Largest Root	166.405	3078.490 ^b	2.000	37.000	<.001
STAD_PAIKE M	Pillai's Trace	.897	160.360 ^b	2.000	37.000	<.001
	Wilks' Lambda	.103	160.360 ^b	2.000	37.000	<.001
	Hotelling's Trace	8.668	160.360 ^b	2.000	37.000	<.001

Roy's Largest Root	8.668	160.360 ^b	2.000	37.000	<.001
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a. Design: Intercept + STAD_PAIKEM

b. Exact statistic

The table above shows that the significance value is 0.000 ($\text{sig} < 0.05$), indicating that simultaneously, the STAD cooperative learning method with the PAIKEM approach has a significant effect on both student learning outcomes and character. This is because it combines structured group cooperation with student-centered learning activities. In STAD, students learn in heterogeneous teams to help each other understand the material, thereby improving cognitive understanding and academic achievement through intensive social interaction. The PAIKEM approach strengthens this process by encouraging active engagement, creativity, and a conducive learning atmosphere, so that students not only acquire knowledge optimally but also develop positive character traits such as responsibility, discipline, cooperation, tolerance, and self-confidence. The combination of both creates a holistic learning experience, where improvements in learning outcomes go hand in hand with sustainable character development.

4. Discussion

1) The Effect of the Implementation of the STAD Cooperative Learning Model through the PAIKEM Approach on the Character of Grade IV Students at SDN 143 Inpres Leko

Based on the results of data analysis, the implementation of the Student Teams Achievement Division (STAD) cooperative learning model through the PAIKEM approach had a significant positive effect on the character development of Grade IV students at SDN 143 Inpres Leko, Maros Regency. The paired sample t-test showed a significance value of 0.000, with a t-value (12.721) greater than the t-table value (1.734), indicating a meaningful difference between the experimental and control classes.

In the experimental class, most students demonstrated improvements in religious attitudes, discipline, responsibility, cooperation, honesty, and social awareness compared to the control class. This finding indicates that the implementation of the STAD model, which emphasizes heterogeneous group work, mutual assistance, and individual responsibility, is capable of fostering positive character values. The PAIKEM approach, which focuses on active, innovative, creative, effective, and enjoyable learning, further strengthened students' motivation and engagement in the learning process, allowing character development to occur naturally through collaborative and meaningful learning experiences.

These findings can be explained through cooperative learning theory developed by Slavin (1995), particularly the STAD model. The theory emphasizes cooperation among students in small heterogeneous groups to achieve shared goals. In this study, STAD enabled students to help one another understand the material, develop both individual and group responsibility, and enhance social skills. Intensive interaction within groups also fostered character values such as cooperation, discipline, tolerance, and responsibility, which are key components of character education according to Lickona (1991).

Furthermore, the PAIKEM approach (Active, Innovative, Creative, Effective, and Enjoyable Learning) strengthened these results through constructivist theory proposed by Piaget

and Vygotsky. Constructivism asserts that knowledge is actively constructed by learners through meaningful learning experiences and social interaction. In PAIKEM-based learning, students are encouraged to think critically, participate actively, and derive meaning from the learning process. This process contributes to the development of positive character traits such as curiosity, self-confidence, and responsibility toward learning. Thus, the combination of the STAD model and the PAIKEM approach creates a conducive learning environment that strengthens cognitive aspects while simultaneously fostering holistic character development.



Picture 1. Implementation of the Cooperative Learning Model for Fourth Grade Students at SDN 143 Inpres Leko

These results are consistent with the findings of Sari et al. (2019), who concluded that the implementation of the STAD cooperative learning model through the PAIKEM approach empirically has a significant impact on students' character development. An active, innovative, creative, effective, and enjoyable learning environment encourages students to develop mutual respect, cooperation, and responsibility. Through intensive group interaction, students focus not only on academic achievement but also on developing positive character values such as discipline, tolerance, and peer concern.

2) The Effect of the Implementation of the STAD Cooperative Learning Model through the PAIKEM Approach on the Learning Outcomes of Grade IV Students at SDN 143 Inpres Leko

The research findings indicate that the implementation of the STAD cooperative learning model through the PAIKEM approach significantly improved the learning outcomes of Grade IV students at SDN 143 Inpres Leko. Based on descriptive statistical analysis, the average learning outcome score in the experimental class was 83.25, higher than the control class mean score of 58.50. The paired sample t-test further confirmed this result with a significance value of 0.000 and a t-value of 8.847, indicating a significant difference between the two groups.

Observations of student activities revealed that the experimental class demonstrated very good levels of cognitive, psychomotor, and affective engagement, with averages above 80%, while the control class remained in the low category. Therefore, the STAD model combined with the PAIKEM approach proved effective in improving learning outcomes, as this strategy not only focuses on mastering subject matter but also promotes active participation, teamwork, and individual responsibility, which collectively strengthen academic ability and learning motivation.



Picture 2. Implementation of the STAD Cooperative Learning Model for Grade IV Students at SDN 143 Inpres Leko

These results align with Slavin's (1995) cooperative learning theory, which states that student success is determined not only by individual ability but also by social interaction and teamwork within heterogeneous groups. Through diverse group composition, STAD encourages peer assistance, idea exchange, and shared responsibility for group success. This process fosters intrinsic motivation, as individual achievement contributes to team success, thereby promoting active engagement in learning activities.

The PAIKEM approach further reinforces this theory by emphasizing students' active role in constructing knowledge through meaningful and enjoyable learning activities. Based on Piaget's and Vygotsky's constructivist theory, PAIKEM positions students as active subjects who build knowledge through direct experience and social interaction. In this study, the integration of STAD and PAIKEM allowed students to learn collaboratively while remaining active and creative in understanding the subject matter. This synergy explains the significant improvement in learning outcomes, as learning became more participatory, relevant, and capable of fostering sustained and holistic motivation.

These findings support the study of Ramafrizal and Julia (2018), which concluded that implementing the PAIKEM approach within the STAD cooperative learning model significantly improves student learning outcomes. Active student involvement through direct experience, group discussion, and collaborative problem-solving enhances deeper understanding and academic achievement.

3) The Effect of the STAD Cooperative Learning Model through the PAIKEM Approach on Character and Learning Outcomes of Grade IV Students at SDN 143 Inpres Leko

Based on the results of data analysis of learning outcomes and character observations, it can be concluded that the STAD cooperative learning model through the PAIKEM approach significantly influences both character and learning outcomes of Grade IV students at SDN 143 Inpres Leko. This conclusion is supported by the MANOVA test result of 0.000 (Sig. < 0.05).

This model is effective because it simultaneously improves academic achievement and fosters positive character development through active, collaborative, and enjoyable learning.

These findings are consistent with the study conducted by Pujiarti et al. (2025), which demonstrated that the implementation of the STAD cooperative learning model significantly

affected students' learning outcomes in Civic Education for Grade IV elementary students. The quasi-experimental design showed increased cognitive competence after implementing collaborative learning, where PAIKEM principles were implicitly reflected in team-based structures, group discussions, and joint evaluations.



Picture 3. Fourth Grade Student Learning Outcomes at SDN 143 Inpres Leko

The findings also support Astuti et al. (2025), who reported that the implementation of the STAD cooperative learning model significantly influenced learning outcomes and interacted positively with social skills (a character aspect). Their quasi-experimental study showed that students taught using STAD achieved higher academic scores and demonstrated improved social skills such as communication, cooperation, and mutual respect. These results are consistent with PAIKEM principles emphasizing active and collaborative learning and character development through group interaction.

4. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research conducted as described above, the following conclusions can be drawn:

- a. The implementation of the STAD-type cooperative learning model through the PAIKEM approach in Grade IV students of SDN 143 Inpres Leko was carried out effectively. This can be seen from the learning process, where the implementation of this model was able to improve students' character, making them more active, creative, and engaged in an enjoyable learning environment. Thus, the application of this model contributes to the enhancement of students' character development.
- b. The effect of implementing the STAD-type cooperative learning model through the PAIKEM approach on the character of Grade IV students at SDN 143 Inpres Leko indicates a positive influence. During the learning process, students demonstrated disciplined, responsible, and confident attitudes. Therefore, the application of this learning model is able to shape and improve students' character effectively. In addition, this model is also capable of improving students' learning outcomes.
- c. The effect of the STAD-type cooperative learning model with the PAIKEM approach shows a significant influence on the learning outcomes of Grade IV students at SDN 143 Inpres Leko. This can be observed from the improvement in students' learning outcomes after the implementation of the STAD model through the PAIKEM approach. Students' learning

activities became more effective, and they were able to understand the material more easily, which ultimately enhanced their academic achievement.

- d. Overall, the implementation of the STAD-type cooperative learning model through the PAIKEM approach has a significant effect on both students' character and learning outcomes. This learning model not only improves students' academic abilities but also plays an important role in character development.

Based on the research findings, the following recommendations are proposed:

- a. For Teachers: Teachers are encouraged to consistently implement the STAD-type cooperative learning model with the PAIKEM approach in every teaching and learning activity, with a focus on character building through group interaction. This will help students develop discipline, responsibility, and cooperation skills more effectively.
- b. For Schools: Schools should provide regular training for teachers regarding the implementation of the STAD model with the PAIKEM approach and prepare supporting facilities such as interactive learning media. This will help improve students' learning outcomes significantly.
- c. For Parents: Parents are advised to support cooperative-based learning at home by giving students opportunities to discuss and complete assignments collaboratively. In this way, positive character traits and academic achievements gained at school can continue to be internalized and strengthened.

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