USING THE CIRC (COOPERATIVE INTEGRATED READING AND COMPOSITION) MODEL TO IMPROVE VOCABULARY MASTERY AND READING COMPREHENSION

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ABSTRACT

The Learning Model is a very important component in planning and delivering learning. Learning models have many varieties, one of which is the cooperative model. CIRC *(Cooperative* Integrated Reading and Composition) type. This study aims to determine the extent to which the CIRC (Cooperative Integrated Reading and Composition) learning model improves vocabulary mastery and reading comprehension of students at Madrasah Tsanawiyah Harapan Baru Ciamis in Arabic language subjects on *qirā'ah* material. The method used in this study is an experimental method with a quasi-experimental design of the pre-test and post-test type. Data collection techniques in this study were observation, interviews, tests, literature studies, and documentation. The sampling in this study was class IX-A and IX-B at MTs. Harapan Baru Ciamis totaling 47 students. The results showed increased students' learning outcomes in vocabulary mastery and reading comprehension at Madrasah Tsanawiyah Harapan Baru Ciamis in the control and experimental class students. This is indicated by the average initial value of vocabulary mastery in the control class of 50.63 to 67.92. While in the experimental class, the initial average score was 53.91 to 76.74. The increase in students' reading comprehension in the control class got an initial average score of 66.71 to 79.42. The average initial reading comprehension in the experimental class was 67.04 to 86.22. The effectiveness of increasing vocabulary mastery with the Jigsaw model in the control class increased by 35.75%, including the ineffective category. The increase in vocabulary mastery in the experimental class using the CIRC model was 49.75%. This shows that increasing vocabulary mastery is included in the less effective category. The effectiveness of increasing reading comprehension in the control class using the jigsaw model was 36.90%, indicating that the model used was included in the ineffective category. While the increase in reading comprehension using the CIRC model was 56.51%. This shows that increasing reading comprehension using the CIRC model is effective.

Keywords: CIRC Model, Cooperative Learning, Vocabulary Mastery, Reading Comprehension

ABSTRAK

Model pembelajaran merupakan komponen yang sangat penting dalam perencanaan dan pelaksanaan pembelajaran. Model pembelajaran memiliki banyak variasi, salah satunya adalah model kooperatif. Tipe CIRC (Cooperative Integrated Reading and Composition) adalah salah satu contohnya. Penelitian ini bertujuan untuk mengetahui sejauh mana model pembelajaran CIRC (Cooperative Integrated Reading and Composition) dapat meningkatkan penguasaan kosakata dan pemahaman bacaan siswa di Madrasah Tsanawiyah Harapan Baru Ciamis dalam mata pelajaran bahasa Arab pada materi qira'ah. Metode yang digunakan dalam penelitian ini adalah metode eksperimen dengan desain eksperimen semu (quasi-experimental) tipe pre-test post-test. Teknik pengumpulan data dalam penelitian ini meliputi observasi, wawancara, tes, studi pustaka, dan dokumentasi. Sampel dalam penelitian ini adalah siswa kelas IX-A dan IX-B di MTs. Harapan Baru Ciamis yang berjumlah 47 siswa. Hasil penelitian menunjukkan bahwa terdapat peningkatan hasil belajar siswa dalam

penguasaan kosakata dan pemahaman bacaan siswa di Madrasah Tsanawiyah Harapan Baru Ciamis pada siswa kelas kontrol dan eksperimen. Hal ini ditunjukkan dengan rata-rata nilai awal penguasaan kosakata di kelas kontrol yang meningkat dari 50,63 menjadi 67,92. Sedangkan di kelas eksperimen, nilai rata-rata awal meningkat dari 53,91 menjadi 76,74. Selain itu, peningkatan pemahaman bacaan siswa di kelas kontrol mendapatkan nilai rata-rata awal dari 66,71 menjadi 79,42. Sedangkan pemahaman bacaan di kelas eksperimen meningkat dari 67,04 menjadi 86,22. Efektivitas peningkatan penguasaan kosakata dengan model Jigsaw di kelas kontrol meningkat sebesar 35,75%, yang termasuk dalam kategori tidak efektif. Sedangkan peningkatan penguasaan kosakata di kelas eksperimen menggunakan model CIRC adalah sebesar 49,75%, yang menunjukkan peningkatan penguasaan kosakata termasuk dalam kategori kurang efektif. Efektivitas peningkatan pemahaman bacaan di kelas kontrol menggunakan model Jigsaw sebesar 36,90%, menunjukkan bahwa model yang digunakan termasuk dalam kategori tidak efektif. Sedangkan peningkatan pemahaman bacaan menggunakan model CIRC sebesar 56,51%, yang menunjukkan bahwa peningkatan pemahaman bacaan dengan menggunakan model CIRC dikatakan efektif.

Kata Kunci: Model CIRC, Pembelajaran Kooperatif, Penguasaan Kosakata, Pemahaman Bacaan

INTRODUCTION

Reading skills and vocabulary acquisition are essential to language learning, particularly for mastering Arabic as an international language (Siregar et al., 2024; Wahyudi et al., 2023). These skills are critical for academic success and effective communication in a globalized world (Akmalia et al., 2021). In Indonesia, reading comprehension and vocabulary are integral to the national education curriculum, including at the Madrasah Tsanawiyah level (Ghofur et al., 2019). However, many students struggle to understand reading texts and enrich their vocabulary, a challenge that hinders their overall language proficiency (Anggraeni et al., 2023).

This issue is particularly evident at Madrasah Tsanawiyah Harapan Baru Ciamis, where students often encounter difficulties decoding texts and grasping unfamiliar words. Traditional teaching methods, which focus primarily on rote memorization and passive learning, have proven insufficient in addressing these challenges. As a result, there is an urgent need for innovative, student-centered learning approaches, such as the Cooperative Integrated Reading and Composition (CIRC) model, to enhance students' engagement and improve their Arabic language outcomes effectively.

Researchers have used the Cooperative Integrated Reading and Composition (CIRC) learning model for class IX students at MTs to address challenges in improving vocabulary mastery and reading comprehension. Harapan Baru Ciamis. Several studies have explored the use of CIRC to enhance language skills. For instance, Husnul Fuadatun Nisa' demonstrated effectiveness in improving *qira'ah* skills among INKAFA Gresik students (Fuadatun Nisa`, 2021). At the same time, Muna Mutamimah et al. found positive effects of CIRC on Arabic reading skills in MTs Madinatunnajah Cirebon (Mutamimah et al., 2021). Supangat's study highlighted its role in enhancing the reading and writing of the Yellow Book in Islamic boarding schools (Supangat, 2016), and Widyaningtyas Kusuma Wardani showed the superiority of CIRC over Problem-Based Learning (PBL) in reading comprehension (Widyaningtyas, 2016). Lastly, Ilham et al. concluded that CIRC outperformed the SQ3R method in improving students' reading comprehension (Ilham et al., 2023).

The importance of this study lies in the relevance of the Cooperative Integrated Reading and Composition (CIRC) method in addressing these learning challenges. The CIRC model, which integrates reading and writing skills in a collaborative learning atmosphere, has been proven effective in improving students' reading comprehension and vocabulary acquisition in various educational contexts (Ardiansyah, 2021; Fauziah et al., 2023). However, studies on its application in the Madrasah Tsanawiyah environment, particularly in Indonesia, are limited. This research

aims to fill this gap and make a real contribution to developing pedagogy in this area. Building on these findings, this study focuses on applying CIRC to enhance both vocabulary mastery and reading comprehension, particularly in the context of MTs. Harapan Baru Ciamis. Unlike previous research, this study emphasizes integrating vocabulary development with reading.

This study aims to identify the impact of CIRC model implementation on students' vocabulary acquisition and reading comprehension. In addition, this study also aims to evaluate the effectiveness of the CIRC model as an alternative teaching method in the Madrasah Tsanawiyah environment. Thus, the results of this study are expected to provide practical recommendations for teachers and educators in improving the quality of Arabic language learning.

Logically, collaboration-based approaches such as CIRC provide an advantage in language learning contexts as they involve active student interaction. This model allows students to learn from shared experiences, build better understanding, and broaden their horizons through group discussions. Therefore, this research can potentially provide practical solutions to students' challenges at Madrasah Tsanawiyah Harapan Baru Ciamis.

METHOD

This research is included in quantitative research because it tests the hypothesis set to research on a certain population and sample, data collection using research instruments, and quantitative or statistical data analysis. The research method used in this study is an experiment with a *nonequivalent control group design*. Experiments attempt to determine whether a class given an action affects the results of a study. This study uses two research samples: the experimental and the control or comparison classes (Musthafa & Hermawan, 2018). The following is the research design used in this study, using *a pre-test and post-test design*:

Table 1 Nonequivalent control group design

Group	Pre-test	Treatment	Post-test
Experiment	Y1	X	Y2
Control	Y1	-	Y2

There are two sources of data in research, namely primary data sources and secondary data sources. According to Sugiyono, primary data sources are data sources that directly provide data to data collectors. In contrast, secondary sources do not directly provide data to data collectors, for example, through other people or documents. The primary data source in this study is the students of class IX Mts Harapan Baru Ciamis. At the same time, secondary data sources include subject teachers, principals, books, and journals that discuss the CIRC learning model.

The population in this study consisted of 136 grade IX students of MTs Harapan Baru Ciamis. Meanwhile, the sample included 42 students from classes IX-A and IX-B, selected using a probabilistic sampling technique to ensure that each student had an equal chance of being chosen. This approach aimed to obtain a representative sample that could accurately reflect the characteristics of the larger population.

The research was conducted at MTs Harapan Baru Ciamis, specifically in grade IX classrooms. Several techniques were employed to facilitate comprehensive data collection, including observation to monitor student activities and behaviors, interviews to gain in-depth insights from students and teachers tests to measure students' academic performance, and documentation to support data with relevant records and materials.

For data analysis, various techniques were utilized to ensure the accuracy and reliability of the results. These included validity tests to assess the accuracy of the instruments, reliability tests to determine consistency, and descriptive analysis to summarize the data. Quantitative analysis was also conducted, involving normality and homogeneity tests to verify data distribution and variance. Additionally, the T-test was applied to compare the performance between the control and experimental groups. At the same time, the n-gain test was used to measure the effectiveness of the treatment based on the improvement in students' learning outcomes.

RESULTS AND DISCUSSION
CIRC Learning Model

The CIRC learning model is one of the cooperative learning models used to improve students' reading and writing skills simultaneously (Sari et al., 2024). The main purpose of CIRC is to use cooperative teams to help students learn reading comprehension skills that are widely applied, according to Slavin. Ariyana & Suastika argue that CIRC-type cooperative learning in terms of language can be interpreted as a learning model that integrates a reading as a whole and then composes it into important parts (Ariyana & Suastika, 2022).

The Cooperative Integrated Reading and Composition (CIRC) learning model consists of several steps. First, students are divided into groups of four with heterogeneous members. Next, the teacher provides discourse or clippings related to the learning topic. Students then collaborate by reading the materials together, identifying the main ideas, and providing responses, which they record on sheets of paper. Afterward, each group presents or reads their findings. The teacher concludes the session by summarizing the key points with the students, followed by a closing activity (Nada et al., 2024; Rahmi & Marnola, 2020).

Here are some of the advantages of the CIRC model, namely first, developing reading and writing skills. Second, the model uses cooperative learning techniques, where students help each other and share knowledge in groups. This encourages social interaction and collaboration between students. Third, the CIRC model usually involves various practical activities and projects that allow students to apply reading and writing skills in a more realistic setting. Fourth, CIRC can increase learning motivation by involving students in group activities and providing direct feedback. Students feel more involved and have more opportunities to discuss and ask questions. Fifth, this model often includes ongoing formative assessment, which allows teachers to monitor student progress regularly and provide constructive feedback. Sixth, CIRC can adapt to different students' needs and skill levels. Seventh, CIRC helps students develop social and communication skills through group assignments and discussions. Eighth, CIRC helps students better understand texts and develop critical thinking skills by integrating reading and writing learning (Nur Aziz & Cahyani, 2022). The CIRC model provides a holistic approach to reading and writing learning, focusing on student engagement and effective collaborative strategies (Aiman et al., 2023).

Although the CIRC (Cooperative Integrated Reading and Composition) model has many advantages, some disadvantages or challenges may arise when implementing it (Patty, 2023). The disadvantages include, first, implementing the CIRC model requires adequate resources, such as relevant teaching materials, learning aids, and preparation time. Second, the success of CIRC depends heavily on the teacher's skills in managing groups, designing appropriate activities, and providing constructive feedback. Third, differences in ability between students can be challenging in collaborative groups. Fourth, CIRC involves many group activities and discussions, which require more time than traditional teaching methods. Fifth, this model may need to be adapted

to fit existing curriculum standards. Sixth, assessing student progress in the CIRC model can be more complex than traditional learning methods. Seventh, group dynamics can be challenging, especially if there is tension or conflict between group members. Adapting to new methods and practicing cooperative techniques effectively can be challenging for some teachers and students (Utami, 2020). Despite some disadvantages, these challenges can be overcome with adequate training, method adjustments, and appropriate support.

Vocabulary Mastery

Vocabulary in Arabic is called *mufradat, which means words consisting of two or more letters and have meanings.* Vocabulary is the smallest unit that can stand alone from basic words or exhortations with meaning. This vocabulary is an important part of understanding and learning a language. Vocabulary mastery is a person's ability to understand, use, and remember various words and terms in a particular language (Ramadil & Musdizal, 2024).

Vocabulary skills encompass several key abilities. First, they involve the ability to recognize and understand the meaning of words when reading or listening, which includes both literal and contextual interpretations. Additionally, vocabulary skills include using words appropriately in speaking and writing, ensuring that words are placed correctly and suited to the context. Another important aspect is the ability to identify familiar and new words in various situations and distinguish between similar words (Flores et al., 2023).

Furthermore, vocabulary skills require the ability to remember words and their meanings in the long term, allowing for active use in daily communication. This also involves understanding and using words in different contexts and situations, including recognizing variations in meaning and usage. Lastly, vocabulary development is a continuous process of learning new words and integrating them into active vocabulary through reading, listening, and everyday experiences (Riwanda et al., 2021). Good vocabulary mastery is an important indicator of strong language skills and is the foundation for effective communication and deep understanding (Mitrajati et al., 2023). The indicators of vocabulary mastery in this study are students' ability to translate vocabulary, pronounce and rewrite vocabulary well and correctly, and use vocabulary in the form of simple sentences *(number of sentences).*

Reading Comprehension

Reading comprehension is a cognitive process that involves interpreting and understanding information from a text that is read. It is more than just recognizing words; it involves understanding the meaning, context, and implications of the text (Ardiansyah, 2020). Tarigan said that the purpose of reading is to be able to find the main idea, choose the main points of the reading that are important for organizing the reading material, write the predicted conclusions from the reading, and then be able to find the implied and explicit meaning. Explicit content. Convey information as a summary and find the difference between facts and opinions when reading. The purpose of reading is to understand what is contained in a reading (Tarigan & Tarigan, 2021).

The indicators of reading comprehension taken in this study are, first, finding the main idea of each paragraph. Second, being able to write difficult words and find their meaning. Third, answering questions about the content of the reading. Fourth, retell the content of the reading in your own words. Fifth, being able to provide examples of each main idea in the reading (Al-Harbi et al., 2023).

DISCUSSION

Cooperative Integrated Reading and Composition Model Learning Design

Before data collection, the researcher conducted a trial of the question instrument that would be used as a pre-test and post-test. The trial was conducted at MTs. Harapan Baru was not a control and experimental class with 28 students. The trial was conducted to determine the validity and reliability of the instrument.

Of the 30 multiple-choice instrument trial questions, there are 21 valid questions and 9 invalid questions because $_{\text{the calculated r}}$ is smaller than $_{\text{the table r}}$ at a significance level of 5% with n 28, which is 0.3739. From the calculation of the reliability test, an r value of 0.876 was also obtained. So, it can be concluded that the learning outcome test instrument is reliable and has very high criteria.

Meanwhile, the essay test questions consist of 10 questions categorized as valid because $_{\text{the calculated r}}$ is smaller than $_{\text{the table r}}$ at a significant level of 5% with n 28, which is 0.3739. From the reliability test calculation, an r value of 0.797 was also obtained. So, it can be concluded that the learning outcome test instrument is reliable and has high criteria.

After the trial was conducted and the results were known, the trial was continued by taking initial data using a pre-test in the experimental and control classes. This pre-test was conducted to determine students' initial knowledge before the learning process. The pre-test results obtained the average value of the control and experimental classes. After the pre-test, the researcher conducted the learning process in the experimental and control classes by giving different treatments with the same material, namely *"khāliq al-'ālam"*.

The researcher took a sample of class IX-A with 24 students in the control class. After completing the pre-test in this control class, the researcher completed the learning process by delivering material to students with the Jig Saw cooperative learning model. Previously, students were divided into five groups, so 4-5 students were in each group. After completing the group division, the teacher assigned each student to study the reading text, allowing students to read quickly. Then, an expert group will be formed that will discuss the topic with other groups. The results obtained from other groups are discussed with their original group. During the learning process in this control class, it was seen that many students followed the learning process well. However, some students were quiet and less concentrated on learning.

In the experimental class, the researcher took a sample of class IX-B with 23 students. In this experimental class, the learning process was carried out using the CIRC (*Cooperative Integrated Reading and Composition*) learning model. Previously, students were divided into five groups, so 4-5 students were in each group. After the group division was complete, the teacher distributed a discourse text on the topic *"khāliq al-'ālam,"* which then each student in the group read to each other, found the main idea, and gave each other responses to the reading text. After giving each other responses, students were asked to present and make a report on the results of the group discussion.

During this learning process, each group member is involved in reading activities in turns, translating each vocabulary, sharing opinions and working together to respond, providing conclusions, and making a final report to be presented in front of the class.

After the discussion process of each group is completed, each group comes forward to the front of the class in turn to present the results of the discussion. During the presentation process, one of the groups comes forward, and then the other groups participate by asking questions they do not understand until they respond to each other and give their opinions or provide rebuttals. In this discussion process, many students were seen to be enthusiastic and active in discussing, starting from asking questions and rebuttals to expressing their opinions. However, some students were still not confident in giving responses. However, by using this

learning model, students do not just watch their friends silently but are also actively involved in learning.

This learning model emphasizes student activity in cooperation with their groups the ability to read, translate, and analyze, and presenting final reports in each group. This makes students more enthusiastic and actively involved in the learning process.

After the learning process of both classes is completed, the researcher gives a post-test to find out the results of the learning process that has been carried out. Based on the results of this post-test, whether there is an influence of the CIRC learning model or not will be seen.

Using the CIRC Model to Improve Vocabulary Mastery

To determine students' abilities before and after using the CIRC mode, the researcher compared the results of the pre-test and post-test conducted in the control class and the experimental class and obtained the following results:

Table 2. Descriptive Analysis

Statistics		PreEx Vocabulary	PosEks Vocabulary	PreKntrl Vocabulary	PosKntrl Vocabulary
N	Valid	23	23	24	24
	Missing	1	1	0	0
Mean		53.91	76.74	50.63	67.92
Std. Error of Mean		1,832	1.281	1,763	1,853
Median		55.00	75.00	50.00	70.00
Mode		50 [a]	80	40 [a]	70
Std. Deviation		8,785	6.144	8,637	9,079
Variance		77,174	37,747	74,592	82,428
Range		35	25	30	35
Minimum		35	65	40	50
Maximum		70	90	70	85
Sum		1240	1765	1215	1630
a. Multiple modes exist. The smallest value is shown					

The calculation results using SPSS 20 above on the data before treatment (pre-test) in the control class obtained an average score of 50.63, a mean value of 50, a standard deviation of 8.637, a minimum value of 40, and a maximum value of 70. For the post-test, an average score of 67.92, a mean value of 70, a standard deviation of 9.079, a minimum value of 50, and a maximum of 85 was obtained. This indicates an improvement in the control class's performance after the treatment, although the increase is moderate based on the mean score difference.

Meanwhile, for the experimental class, the calculation results using SPSS 20 above on the data before treatment (pre-test) in the experimental class obtained a valid sample count of 23, an average score of 53.91, a mean value of 55.00, a standard deviation of 8.785, a minimum value of 35, and a maximum value of 70. For the post-test, the average score was 76.74, a mean value of 75, a standard deviation of 6.144, a minimum value of 65, and a maximum value of 90. This significant increase in the average and mean scores, along with the lower standard deviation, suggests that the treatment applied in the experimental class was more effective in improving student performance compared to the control class. The reduced standard deviation also indicates more consistent performance among students in the experimental group after the treatment.

Normality Test

A normality test determines if data follows a normal distribution. Using SPSS 20, the Shapiro-Wilk normality test evaluates this with a significance (sig.) value criterion. If the sig. value is greater than 0.05, the data is considered normally distributed; if less than 0.05, it indicates non-normal distribution. This test helps decide whether to apply parametric or non-parametric statistical methods. The Shapiro-Wilk test is preferred for small sample sizes due to its sensitivity to normality deviations. Understanding data distribution is crucial for accurate statistical analysis and reliable research conclusions in various scientific studies. The following are the results of the normality test in SPSS 20:

Table 3. Normality Test

		Kolmogorov-Smirnov [a]			Shapiro Wilk		
	Class	Statistics	df	Sig.	Statistics	df	Sig.
Results	Pre_Ex	.114	23	.200 [*]	.966	23	.600
	Post_Ex	.180	23	.050	.936	23	.151
	Pre_Kntrl	.159	24	.118	.923	24	.068
	Pos_Kntrl	.132	24	.200 [*]	.957	24	.381

Based on the calculation results in the table above, it is known that the normality test in the control and experimental classes in the pre-test and post-test has a sig value < 0.05, so it can be concluded that all data is normally distributed. This indicates that the data meets the assumption of normality, which is a prerequisite for conducting further parametric statistical tests such as the T-test.

Since the data is normally distributed, the next step is to perform the homogeneity test to determine whether the variances between the control and experimental groups are equal. The homogeneity test results show that the sig value is > 0.05, indicating that the data has a homogeneous variance. This means that the variance of scores in both groups is similar, fulfilling another requirement for conducting the T-test.

With both normality and homogeneity assumptions met, the T-test can be conducted to compare the mean scores between the control and experimental classes in both pre-test and post-test conditions. The T-test results will help determine whether there is a significant difference in learning outcomes between the two groups, thus assessing the effectiveness of the applied treatment.

Homogeneity Test

The homogeneity test is conducted on the pre-test and post-test results of students in the control and experimental classes to determine whether the data is homogeneous or not, with the criteria if the sig value > 0.05, then the data is homogeneous; if otherwise, then the data is not homogeneous.

Table 4. Pre-test Homogeneity Test

Test of Homogeneity of Variance		Levene Statistics	df1	df2	Sig.
Results	Based on Mean	1.251	3	90	.296
	Based on Median	.976	3	90	.408
	Based on the Median and with adjusted df	.976	3	84,981	.408
	Based on trimmed mean	1.180	3	90	.322

The table displays the Test of Homogeneity of Variance using Levene's Test, which assesses whether variances across groups are equal—a key assumption for ANOVA. The test was conducted based on four approaches: Mean, Median, Median with adjusted degrees of freedom (df), and Trimmed Mean. The Levene Statistics values range from 0.976 to 1.251, with df1 = 3 and df2 around 90. The Sig. (p-values) are all above 0.05 (ranging from 0.296 to 0.408), indicating no significant variance differences among groups. Thus, the assumption of homogeneity of variance is met, and parametric tests like ANOVA can be appropriately used.

Table 5. Posttest Homogeneity Test

Test of Homogeneity of Variance		Levene Statistics	df1	df2	Sig.
Learning outcomes	Based on Mean	3.307	1	45	.076
	Based on Median	2.392	1	45	.129
	Based on the Median and with adjusted df	2.392	1	40,373	.130
	Based on trimmed mean	3.280	1	45	.077

Based on the two tables above, it is known that the sig value > 0.05, so the pre-test and post-test in the control and experimental classes have homogeneous variances. This means that the assumption of homogeneity of variance has been met, indicating that the variances between the two groups (control and experimental) are equal.

This is an important prerequisite for conducting further parametric statistical tests, such as the Independent Sample T-test. Since both the normality and homogeneity assumptions have been satisfied, the data can be considered reliable for testing differences in means between the control and experimental classes.

Therefore, with homogeneous variances and normally distributed data, it is appropriate to proceed with statistical tests to examine the effectiveness of the treatment applied in the experimental class compared to the control class, ensuring that any observed differences in post-test scores are statistically valid.

Hypothesis Testing

Hypothesis testing in this study used *the Independent Sample T-Test.*

Table 6. *Independent Sample T-Test Pre-test*

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Learning	Equal variances assumed	.010	.919	1.294	45	.101	.202	3.288	2,541	-1,831	8,407

Independent Samples Test										
outco mes	Equal variances are not assumed.			1.293	44,8 36	.101	.203	3.288	2,542	-1,833	8.409

From the results of the Independent Sample T-Test in the table above, the sig value > 0.05, it can be concluded that there is no significant difference in the pre-test scores between the control and experimental classes. This indicates that both groups had relatively similar initial abilities before the treatment was applied, ensuring that any differences observed in the post-test results can be attributed to the treatment rather than pre-existing differences. Furthermore, the post-test results from the Independent Sample T-Test show a sig value < 0.05, indicating a significant difference between the control and experimental classes after the treatment. This suggests that the treatment given to the experimental class positively improved students' learning outcomes compared to the control class, which did not receive the same intervention. Thus, it can be concluded that the applied treatment effectively enhanced student performance.

Table 7. *Independent Sample T-Test Post-test*

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Learning outcomes	Equal variances assumed	3.307	.076	3,884	45	<.00 1	8,822	2.271	4.248	13,397
	Equal variances are not assumed.			3.916	40,55 2	<.00 1	8,822	2.253	4.271	13,374

From the results of the Independent Sample T-Test in the table above, the sig value < 0.05, it can be concluded that there is a significant difference in the post-test scores between the control and experimental classes. This indicates that the treatment or intervention applied to the experimental class had a measurable impact on students' learning outcomes compared to the control class, which did not receive the same treatment.

The difference in post-test scores suggests that the learning model or method implemented in the experimental class improved students' academic performance more effectively. This conclusion is further supported by the increase in the average post-test scores of the experimental class compared to the control class. Therefore, it can be inferred that the applied treatment significantly enhanced students' understanding and mastery of the learning material.

N-Gain Test

Table 8. N-Gain Test

Description			
	Class		Statistics
NGain_Percent	Experiment	Mean	49.7594
	Control	Mean	35.7546

Based on the table above, the calculation of the N-Gain test shows that the average N-Gain for the control class is 35.75, while the experimental class has an average N-Gain of 49.75. This indicates that the improvement in learning outcomes in the experimental class is higher compared to the control class.

The N-Gain score of 35.75 in the control class falls into the moderate category, suggesting that although there was an improvement in students' learning outcomes, the increase was not as substantial. In contrast, the experimental class's N-Gain score 49.75 is categorized as moderate to high, reflecting a more significant improvement in learning outcomes after the treatment was applied.

These results demonstrate that the learning model or method implemented in the experimental class enhanced students' understanding and retention of the material. The higher N-Gain score in the experimental class confirms that the applied treatment positively and substantially impacted student learning progress compared to traditional methods used in the control class.

Using the CiRC Model to Improve Reading Comprehension

Comparison of pre-test and post-test results of reading comprehension in experimental and control classes

Table 9. Descriptive Analysis of Reading Comprehension

Statistics		Pre_Experiment	Experimental Post	Pre_Control	Pos_Kontrol
N	Valid	23	23	24	24
	Missing	1	1	0	0
Mean		67.26	85.30	66.71	78.00
Std. Error of Mean		1,512	.630	1.286	.823
Median		65.00	85.00	65.50	78.00
Mode		65	83 [a]	59 [a]	73 [a]
Std. Deviation		7,250	3.022	6,300	4.032
Variance		52,565	9.130	39,694	16,261
Range		25	10	23	14
Minimum		55	80	55	71
Maximum		80	90	78	85
Sum		1547	1962	1601	1872

Based on the table above, the calculation of the N-Gain test shows that the average N-Gain for the control class is 35.75, while the experimental class has an average N-Gain of 49.75. This indicates that the improvement in learning outcomes in the experimental class is higher compared to the control class, reflecting the effectiveness of the treatment applied in the experimental group.

The calculation results using SPSS 20 for the control class show that, before treatment (pre-test), the average score was 66.71, with a mean value of 65.50, a standard deviation of 6.300, a minimum score of 55, and a maximum score of 78. After the treatment (post-test), the average score increased to 78.00, with a mean value of 78, a standard deviation of 4.032, a minimum score

of 71, and a maximum score of 85. Although there was an improvement in the control class, the gain was moderate, as reflected in the N-Gain score of 35.75.

In contrast, the experimental class showed a more substantial improvement. The pre-test results indicated an average score of 67.26, a mean value of 65.00, a standard deviation of 7.250, a minimum score of 55, and a maximum score of 80. For the post-test, the average score significantly increased to 85.30, with a mean value of 85, a standard deviation of 3.022, a minimum score of 80, and a maximum score of 90. The higher N-Gain score of 49.75 in the experimental class suggests a more effective learning process, with a notable increase in student performance compared to the control class.

These results indicate that the intervention applied to the experimental class significantly impacted students' learning outcomes. The decrease in the standard deviation from pre-test to post-test in both classes also suggests improved consistency in student performance, with the experimental class showing more consistent and higher achievement levels. Overall, the findings support the conclusion that the applied treatment in the experimental class was more effective in enhancing students' academic performance.

Table 10. Normality Test

Tests of Normality		Shapiro Wilk		
	Class	Statistics	df	Sig.
Results	Pre_Experiment	.937	23	.155
	Experimental Post	.937	23	.154
	Pre_Control	.957	24	.378
	Pos_Kontrol	.932	24	.106

Based on the results of the SPSS calculations above, it is known that the sig value is > 0.05, so the data is normally distributed. This indicates that the data distribution meets the assumption of normality, which is a key requirement for conducting parametric statistical tests such as the Independent Sample T-test and paired T-test.

Since the data is normally distributed, further analysis can be carried out to test for homogeneity of variance using the homogeneity test. If the homogeneity test also shows a sig value > 0.05, the data has equal variance across groups, fulfilling another important assumption for parametric testing.

With both normality and homogeneity assumptions met, the data is suitable for further parametric analysis to determine the effectiveness of the treatment. This includes comparing pre-test and post-test scores between the control and experimental groups to identify significant differences in learning outcomes.

Table 11. Pre-test Homogeneity Test

Test of Homogeneity of Variance		Levene Statistics	df1	df2	Sig.
Results	Based on Mean	1.009	1	45	.320
	Based on Median	.697	1	45	.408
	Based on the Median and with adjusted df	.697	1	43,692	.408
	Based on trimmed mean	1,014	1	45	.319

Based on the two tables above, it is known that the sig value > 0.05, so the pre-test and post-test in the control and experimental classes have homogeneous variances. This means that the assumption of homogeneity of variance has been met, indicating that the variances between

the two groups (control and experimental) are equal. This is an important prerequisite for conducting further parametric statistical tests, such as the Independent Sample T-test. Since both the normality and homogeneity assumptions have been satisfied, the data can be considered reliable for testing differences in means between the control and experimental classes. Therefore, with homogeneous variances and normally distributed data, it is appropriate to proceed with statistical tests to examine the effectiveness of the treatment applied in the experimental class compared to the control class, ensuring that any observed differences in post-test scores are statistically valid.

Table 12. Posttest Homogeneity Test

Test of Homogeneity of Variance		Levene Statistics	df1	df2	Sig.
Results	Based on Mean	3.351	1	45	.074
	Based on Median	3.367	1	45	.073
	Based on the Median and with adjusted df	3.367	1	35,008	.075
	Based on trimmed mean	3.326	1	45	.075

Based on the table above, it is known that the sig value > 0.05, so the data in the experimental and control classes have homogeneous variance. This means that the variability in scores between the two groups is statistically similar, which is an important assumption for conducting parametric tests such as the Independent Sample T-test. Homogeneous variance ensures that the comparison between the two groups is valid and that unequal variances do not influence the results. With this assumption satisfied, it is appropriate to proceed with further statistical analysis to examine whether the treatment in the experimental class led to significant improvements in student performance compared to the control class.

Table 13. *Independent Sample T-Test Pre-test*

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p			Lower	Upper
Learning outcomes	Equal variances assumed	1.009	.320	.169	45	.433	.867	.335	1,984	-3,660	4.331
	Equal variances are not assumed.			.168	43,480	.434	.867	.335	1,990	-3.677	4.347

Based on the independent sample t-test table above, the sig value (2-tailed) is 0.433 > 0.05, so it can be concluded that H₀ is accepted, meaning there is no significant difference in the pre-test results between the control and experimental classes. This suggests that the two groups had comparable initial levels of knowledge and ability before the treatment was applied. Since the pre-test scores are similar, any differences observed in the post-test results can be attributed to the effect of the intervention rather than pre-existing disparities between the groups.

Table 13. *Independent Sample T-Test Post-test*

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Significance	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
Learning outcomes	Equal variances assumed	3.351	.074	6,644	45	<.001	6,801	1,024	4,739	8,862
	Equal variances are not assumed.			6,704	39,545	<.001	6,801	1,014	4,750	8,852

Based on the independent sample t-test table above, the sig value (2-tailed) is 0.001 < 0.05, so it can be concluded that Ho is rejected, meaning there is a significant difference in the post-test results between the experimental and control classes. This suggests that the implemented intervention or treatment improved the experimental class's performance. In contrast, the control class did not show the same level of improvement. The rejection of Ho suggests that the post-test scores of the experimental class were significantly higher, demonstrating the effectiveness of the intervention used in this group.

N-Gain Test

Table 14. N-Gain Test of Reading Comprehension

Description			
	Class		**Statistics**
NGain_Percent	Experiment	Mean	56.5155
	Control	Mean	36.9085

Based on the n-gain test calculation results, the average n-gain value for the control class was 36.90, which is included in the ineffective category, indicating that the improvement in learning outcomes for the control class was minimal. Meanwhile, the average n-gain value for the experimental class was 56.51, which falls into the quite effective category, suggesting a moderate to significant improvement in student performance due to the treatment. The experimental class showed a minimum n-gain value of 26.92 and a maximum of 72.50, reflecting a wide range of student improvement. In contrast to the control class, this highlights the beneficial effects of the intervention used in the experimental class.

CONCLUSION

Based on the results and discussion of the research above, the following conclusions can be drawn regarding the use of the CIRC (Cooperative Integrated Reading and Composition) model: (1) The vocabulary mastery ability of students before using the CIRC model in both the control class and the experimental class was still low, with an average value in the control class of 50.63, while in the experimental class, the average value was 53.91. Similarly, the reading comprehension ability of students before using the CIRC model was also low, with an average value of 66.71 in the control class and 67.04 in the experimental class; (2) After using the CIRC

model, the student's vocabulary mastery ability experienced a significant increase, with the average value in the control class reaching 67.92 and 76.74 in the experimental class. The student's reading comprehension ability also showed significant improvement, with an average value of 79.42 in the control class and 86.22 in the experimental class; (3) The use of the Jigsaw model to improve vocabulary mastery in the control class at MTs Harapan Baru Ciamis was ineffective, as indicated by the average n-gain value of 35.75%, categorized as ineffective. On the other hand, using the CIRC model in the experimental class showed a moderate effect on vocabulary mastery, with an average n-gain value of 49.75%. The Jigsaw model in the control class was also ineffective for reading comprehension, with an average n-gain value of 36.90%. In contrast, using the CIRC collaborative model in the experimental class effectively improved reading comprehension, as shown by the average n-gain value of 56.51%.

AUTHOR CONTRIBUTIONS STATEMENT

[IS] served as the sole author and researcher in this study. They conceptualized the research design, collected and analyzed the data, interpreted the findings, and drafted the manuscript. Additionally, [AS] contributed to the critical revision of the manuscript for important intellectual content and provided final approval for publication.

ACKNOWLEDGMENT

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