COOPERATIVE INTEGRATED READING AND COMPOSITION (CIRC) BASED ON SCIENTIFIC APPROACH (SA) TO IMPROVE STUDENTS' WRITING ACHIEVEMENT

A Thesis

By

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MASTER IN ENGLISH LANGUAGE TEACHING STUDY PROGRAM
LANGUAGE AND ARTS EDUCATION DEPARTMENT
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ABSTRACT

COOPERATIVE INTEGRATED READING AND COMPOSITION (CIRC) BASED ON SCIENTIFIC APPROACH (SA) TO IMPROVE STUDENTS' WRITING ACHIEVEMENT

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The objectives of this study are to find a significant effectiveness between the writing achievement of students who are taught using Cooperative Integrated Reading and Composition based on the Scientific Approach (CIRSA) and Cooperative Integrated Reading and Composition (CIRC) learning models, the correlation between students' perception and students' writing achievement, and the differences of writing aspect of CIRSA and CIRC.

This study employs quasi-experimental pretest-posttest design to investigating the significant difference of students' writing achievement in the two groups. There are 30 samples for both the control class (using CIRC) and the experiment class (Using CIRSA). Both classes were regular classes at the same level. The researcher uses i.e., pretest and posttest of writing test and students' perception questionnaire. Both instruments have been tested for their validity and reliability. Through the independent sample t-test, product moment correlation and paired sample t-test, hypotheses are formulated.

The empirical findings show that first, there is significant differences in writing achievement between the CIRSA and CIRC. It was seen from t-value of both classes was 0.002. Furthermore, it was revealed that CIRSA technique was more effective then CIRC. Second, there is significant correlation between students' perception and their writing achievement with r value 0.764. CIRSA makes students have positive perception and improve their writing achievement. Third, the consequences of aspects improvement in experimental class were content, mechanics, vocabulary, language use and organization. Meanwhile, there were language use, content, mechanics, vocabulary and organization in control class.

***Keywords**: Cooperative Integrated Reading and Composition (CIRC),Cooperative Integrated Reading and Composition based on the Scientific Approach (CIRSA), Students' Perceptions, Students' Writing Achievement*

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Thesis

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Dengan ini saya menyatakan dengan sebenarnya bahwa:

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Bandar Lampung, 2 April 2024
Yang membuat pernyataan,

Farida Ariyani
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CURICULUM VITAE

The writer’s name is Farida Ariyani, and she is usually called Farida. She was born on May 25th, 1994 in Jayasakti, Anak Tuha Distrik, Central Lampung Regency. She is the second daughter of Mr. Sumani and Ms. Mardiyah. She has four siblings: Khoirul Anam is her elder brother, Hawin Fitriyani is her younger sister, and Agus Kurniawan is her younger brother. Now, She is a wife to her husband named Dedi Andrianto and has a son named Muhammad Fathan Al-Hamiz, who is currently a kindergarten student.

Farida's educational background has been marked by a consistent pursuit of excellence. Beginning with her early education at RA Bustanul 'Ulum Jayasakti (graduated in 2001) and obtained the elementary school in MI Bustanul 'Ulum Jayasakti (graduated in 2007), she continued to build on her academic foundation to Islamic Junior High School at MTs Bustanul 'Ulum Jayasakti (graduated in 2009) and Islamic Senior High School at MA Bustanul 'Ulum Jayasakti Anak Tuha (graduated in 2011). She continued her study a Bachelor's Degree in S1-Tadris Bahasa Inggris from IAIN Ponorogo. Then, she held on Master Degree to The Language and Arts Education Department of The Faculty of Teacher Training and Education, Lampung University majoring Master in English Language Teaching Study Program.

MOTTO

In the spirit of **Surah Al-Alaq (verse 1)**

ٱقۡرَأۡ بِٱسۡمِ رَبِّكَ ٱلَّذِي خَلَقَ

"***Read in the name of your Lord who created***".
I embark on the journey of Cooperative Integrated Reading and Composition (CIRC) based on the Scientific Approach (SA).

The timeless words of **Albert Einstein** resonate: "***Learning is an experience, everything else is just information***". Together, let us elevate students' writing achievements, weaving knowledge, collaboration, and scientific inquiry into the fabric of education.

DEDICATION

- This thesis is dedicated to Allah, the Most Merciful and Compassionate, who has bestowed His blessings upon all His powers. Without His guidance and mercy, the completion of this thesis would not have been possible. Thank you for the infinite grace and guidance. Then, Peace and Solutation to our Prophet Muhammad SAW.
- I dedicate this thesis to the unwavering support and boundless love of my family. To my parents (Mr. Sumani and Ms. Mardiyah) and my small family (Not only my husband, Mr. Dedi Andrianto but also to my son, Muhammad Fathan Al-Hamiz), whose sacrifices paved the way for my education and whose encouragement fueled my aspirations, this work stands as a testament to your enduring influence.
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- In honor of every teacher colleague in Bustanul ‘Ulum Foundation who has ignited the flame of curiosity within me, and in gratitude to the participants who contributed their time and insights, this thesis is a tribute to the collaborative spirit of learning.
- This thesis is dedicated to each person who has played a role, big or small, in the intricate tapestry of my academic and personal odyssey. Your influence has made this journey not only possible but profoundly meaningful.
- Above all, to my inner strength and resilience—thank you for persevering through challenges and triumphs alike. May this work contribute, in however small a way, to the pursuit of knowledge and the betterment of our shared understanding.

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This research venture has been an intellectually enriching and spiritually rewarding journey, made possible through the guidance, support, and encouragement of numerous individuals whom I am privileged to acknowledge. I extend my deepest appreciation to my esteemed thesis advisor, Prof. Dr. Cucu Sutarsyah, Dip.TESL., M.A., co-advisor, Dr. Muhammad Sukirlan, M.A., the first examiner Prof. Dr. Ag. Bambang Setiyadi, M.A., Ph.D., and the second examiner Prof. Dr. flora, M.Pd. whose expertise, constructive feedback, and unwavering encouragement have been instrumental in shaping this research. Your guidance has been a beacon throughout this scholarly pursuit. Special gratitude is owed to the faculty members of the Language and Arts Education Department for their valuable insights, scholarly input, and commitment to fostering an environment of academic excellence.

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Last but not least, I acknowledge the support of my friends (MPBI Unila 2022), my colleagues, fellow researchers whose shared enthusiasm and collaborative spirit have infused vigor into the research process and all those who, directly or indirectly, contributed to the realization of this academic endeavor. The exchange of ideas and collective efforts have undoubtedly enriched the quality of this study. May the knowledge generated from this research contribute positively to the field of English Language Teaching and beyond.

In conclusion, I submit this thesis with a sense of accomplishment, gratitude, and the hope that it may contribute to the ongoing discourse within the academic community.

Bandar Lampung, 2 April 2024
The Researcher,

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I. INTRODUCTION

This chapter indicates some points as the prior information of the study. It includes reseach topic, background, research questions, objectives of research, uses of research, scope, and definition of terms. This part is a very important of the current study, as it provides an initial understanding of what the research will explore. Thus, the researcher will explain briefly and clearly.

1.1 Background of the Problem

One of the most important aspects in the rule of language, particularly for students, is writing. Writing relates to process and product the language. According to Nunan et al. (2003), it is process of actuating the thought or ideas to the written context that consists of some sentences or paragraphs. It means that when someone will write something he/she has to think or imagine in building up the concept or draft based on his purpose. In the same line, according to Harmer (2004), writing is product of language. It can be seen that the outcome of writing is a text that has finished after several steps of its product. In short, writing is product of language from several steps to draw up the thoughts, ideas or opinion in construct the concept of writing product or text.

In addition, Syamsi et al. (2020) state that writing exercise is a means of expressing oneself and creating an article. In this case, everything that is present—what is seen, experienced, felt, or thought—is expressed in a text. Jayanti (2019) states that if a written work demonstrates coherence, cohesion,

unity, and completeness it will be regarded as being of high quality. Even in universities, students in junior high schools' struggle to understand those concepts.

Then, Thresia (2017) states that the boring classroom exercises that the teacher conducted were the cause of the writing difficulties. While in the boring classroom and when they were assigned writing projects that they accomplished by copying written content from the internet, student ideas cannot be gathered and revealed. Another problem is the students' low level of English proficiency, particularly in writing, which comes from their lack of understanding of the language's significance and the little number of writing assignments they receive. In contrast to the learning activity, the teacher provided the students more writing proficiency assessments.

In addition, the teacher of Islamic Junior High School of Bustanul Ulum finds difficulties during teaching and learning process. The teacher uses PPT slides or worksheet to explain the material. She also divides the students into several groups to make a new text that they have learnt. The students are not active and confuse during discussion. They are silent and depend on other member. It makes them difficult to produce new text on time.

Then, Forsia (2018) also states that the teacher frequently employs boring instructional methods. She applies the teaching method by using Power Point to explain the information. When the students look at the projector screen, she explains the contents or materials. Then the students are asked to describe the issue immediately after receiving it even when they do not comprehend the

materials. As a result, the teaching and learning processes become monotonous, which automatically affects the atmosphere in the classroom. The students lose interest soon and don't fully understand the lessons. The teacher also instructs the students to write independently. As a result, they are passive in their job and do not engage in the learning process. Rarely the teacher provides criticism on the students' writings. The teacher seldom provides criticism on the students' essays. In general, he assignes the students a topic to write on, instructes them to turn in their papers, and then simply returned the marked copies without further discussion. In addition, students struggle to organize their thoughts, apply sentence structures, pick the right words, and decide what to write about. The amount of students who left their sheets blank is evident from the time it took them to write a text.

To ensure that the learning process works effectively and the students are able to comprehend the material presented, qualified teachers must be able to master the subject matter and design methods, media, models, and learning strategies. One of the learning developments can be done by integrating one method with other methods and/or techniques. Each learning method directs the teacher in designing learning steps to help students' difficulties in such a way as to achieve their goals. Nono and Ansel (2023) state that students who are in the middle class should have better writing abilities due to the Cooperative Integrated Reading and Composition (CIRC) method that is being used. Furthermore, it is essential for the teacher to apply appropriate method in teaching and learning process to make

students more engaged, inventive, productive, and enjoyable for them to build their writing abilities. Then, students can develop their creative writing abilities.

In addition, Arsyad et al. (2022) state that CIRC is a cooperative-based learning method. In line with it, Durukan (2011) states that CIRC presents a learning structure that not only increases opportunities for direct instruction in reading but also for use in writing composition. This method supports group discussion-based reading skills. It seems that, in this context CIRC is appropriate for improving the English writing skill of each student.

Previous research has confirmed that CIRC has a positive effect on student learning outcomes. According to Kartika and Morelent (2018) CIRC has not only a positive effect in students' achievement but also an effective way to improve their motivation to learn the writing text. Wulandari et al. (2022) state that CIRC is effective to teach writing of descriptive text for the eighth grades students of junior high school students.

Moreover, Mubarak and Rudianto (2018) state that CIRC helps each student in performing basic skill-building activities (such as oral reading, contextual guessing, asking questions, summarizing, writing a composition based on the story, revising-correcting composition). Additionally, Azizah et al. (2022) stated that CIRC is based on group reading skills. It requires speed in solving problems so that it is efficient in processing. Furthermore, CIRC gives the opportunities to the students to improve their skills since the process to the end of learning process.

In other sides, Mustafa & Samad (2015) state that CIRC not only stimulates students in the cognitive field, but in the psychomotor and affective fields of students. In the academic field, CIRC is very appropriate for improving skills in solving problem solving questions. In addition, Ristanto et al. (2021) argue this method stimulates student motivation to be competitive in group work. In short, this method is able to accommodate diverse (low or high) abilities and willingness of students through group systems and challenging learning.

However CIRC's accuracy in improving reading comprehension skills, there are still several weaknesses in its application. The results of several literatures indicate that effectiveness and efficiency still need to be developed. Varisoglu (2016) states that the teacher must choose the appropriate approach and technique that will be implemented. Consequently, CIRC is method that has several weaknesses. The teacher can modify or integrate it with other technique that appropriate to solve the problem.

Besides, Susilo (2021) states that the effectiveness of cooperative learning in enhancing students' writing abilities is the subject of numerous prior studies, but there is limited published research on how to use the cooperative learning principles to foster students' critical thinking and self-expression in Indonesian EFL writing classrooms. It is supported by Mariana et al., (2020) in her result of research shows that in implementation of CIRC, there is one group which is not active during discussion to think critically related inference and prediction of the text. In other word, the critical thinking must be built in every technique that will be implemented by the teacher. Cause of CIRC is cooperative learning, the

teacher should have more efforts to make the students more active and think critically.

Thus, the development of CIRC to uncover some problems above, the teacher can use one approach namely scientific approach. The teacher regards the students as the topic of the learning in a student-centered approach. The teacher should concentrate on the students' activities throughout the teaching and learning process and encourage them to be active learners by asking questions, developing and expanding their knowledge, exchanging ideas, and engaging in dialogue with one another. The observation, inquiry, justification, experimentation, and network-building processes for all topics were referred to as the teaching and learning process in the scientific approach and it is effective to build the students active in classroom activities to improve their skills (Zaim 2017). It means that scientific approach can make students more active to achieve the goal of teaching and learning process. In addition, the steps of scientific approach make students active and communicative in group to get the new knowledge and improve their language competence Imam Shofwan (2017). Thus, the scientific approach does not only improve students' skills but also their knowledge, critical thinking and language competence.

In addition, CIRC based on Scientific Approach (CIRSA) can be implemented by the teacher to improve students' active and skills. It is relevant with Ristanto et al. (2021) that CIRSA model can develop students understanding, skills and experiences. Based on the previous research findings, it can be inferred that the CIRSA learning model has proven to be more effective in enhancing

students' achievement. In same research Djamahar et al. (2019) also states that CIRSA model can improve students' active and metacognitive skills. It means that the students will improve their knowledge and skills that can be influence their achievement. The previous research results can be used as recommendations to be expected that CIRSA learning model could be implemented in a larger population and other subject. However, previous research has not looked at student perceptions of the implementation of the CIRSA learning model.

In addition, students' perception is crucial to investigate into teaching and learning process to identify how students' feel about the use of a certain teaching method since it will show whether or not the method is effective and appropriate for the needs, characteristics, and instructional aim of the students. It is relevant to previous research found by Kaspirawati et al. (2023) about the correlation beyween students' perception on blended learning implemented in English teaching and students' achievement. It is in line with finding by Lukman (2022) that there is correlation of students' perception and their English learning achievement. It means that the teacher could determine what students need to learn through perception. It also relates to previous research by Wahidah (2019) that found the success of implementing teachnique and managing the class had relationship with students' perception and achievement. In short, the investigating students' perception can help students to share their opinion relates their feelings after the learning proces.

Furthermore, the previous studies indicate that CIRSA model can improve students' knowledge, skills, and achievement. But those are focus on science

materials, not in English ones. Thus, the researcher investigates the implementation of Cooperative Integrated Reading and Composition based on Scientific Approach to improve students' writing achievement and find correlations of their students' perception.

1.2 Research Questions

Based on background of the problem mentioned previously, the questions asked in the current research are to see if there is a significant difference between the independent and dependent variables. Thus, the research questions of this study are formulated as follows:

1. Is there any significant difference between the students' writing achievement who are taught using CIRSA and CIRC learning models?
2. In which aspects of writing do the two techniques differ significantly?
3. Is there any correlation between students' perception and the students' writing achievement?

1.3 Objectives of the Research

In relation to the statement of the research questions above, the objectives of this research are determined as follows:

1. To find a significant difference between the writing achievement of students who are taught using CIRSA and CIRC learning models.
2. To find out the differences of writing aspect of CIRSA and CIRC.

3. To find the correlation between students' perception and the students' writing achievement.

1.4 Uses of the Research

The uses of this research are:

1. Theoretically, the results of the research are expected to give the contribution of the new theory of teaching and learning English that can be beneficial to support on teaching and learning English and to give the recommendation for the further research.
2. Practically, it can be a consideration for English teachers that exploring the effect of Cooperative Integrated Reading and Composition based on Scientific Approach (CIRSA) in teaching writing at Junior High School level.

1.5 Scope of the Research

This research is a quantitative method using quasi-experimental method. The independent variable is Cooperative Integrating Reading and Composition (CIRC) and modified Cooperative Integrating Reading Composition Based on Scinetific Approach (CIRSA) and students' perception on teaching model. Meanwhile, the dependent variable is students' writing achievement. The focus of this research includes the identification of differences in the effectiveness of using CIRSA and CIRC on students' writing achievement. Then, find out a correlation between students' perceptions of CIRSA and their writing achievement. This research was conducted at the ninth-grades students in MTs Bustanul 'Ulum and the participant in this research are 60 students in academic year 2023/2024. The researcher

determines the sample by using purposive sampling and chooses two classes as the sample. The classes are divided into experiment and control class. Thus, the researcher uses independen gorup t-test to find out the difference of learning model effectiveness, correlation product moment to find out the correlation and Repeated Measure T-test to identify the aspect which difference significantly.

1.6 Definition of Term

Based on the description above, the researcher provides several definitions of terms that can across often during the research. The term below will guide the reader in reading and understanding the thesis.

1. **Students' Writing Achievement**. Writing is one of skill that must be mastered by students in learning process. When the students have its skill, they will make the text and the readers can understand well. Writing achievement is the result score of writing ability of the students. Writing achievement has a standard score from the teacher to be passed by the students in writing. There are five aspects of writing process that need to be taken into account in order for authors to be successful in their writing, they are content, organization, grammar, vocabulary, and mechanism.
2. **Cooperative Integrated Reading and Composition (CIRC)**. It is one of strategy of cooperative learning. There is group discussion to solve the problems that are faced by students. CIRC is effective to improve students writing achievement. The following steps are step 1: Introduction to Concepts, step 2: Exploration and Application, and step 3: Publication.

3. **Cooperative Integrated Reading and Composition Based on Scientific Approach (CIRSA)**. It is one of the manifestations of cooperative learning that is believed to be able to empower students to actively participate in the learning process by containing a scientific approach. Though this technique, students can improve their active, skill, and achievement. The steps of CIRSA are (1) Conceptualizing in group division; (2) Organizing to observe and question through Reading and Composition; (3) Guiding to explore and associate concepts into new concept; and (4) Presenting work with publication and discussion.
4. **Students' Perception.** It is the process of evaluating an event, something or person through the sense to make the justification about it. It means that the aims of determining students' perception is concluding whether the teaching method is effectiveness or not, as evaluation for the teacher**. T**here are three aspect of perception: (1) The perspective of the technique; (2) Practical knowledge of facts about the application of the technique; and (3) The seriousness of students in responding the technique.

In summary, this chapter explains the background of research, research question, objectives, uses and scope of research related Cooperative Integrated Reading and Composition Based on Scientific Approach (CIRSA) to improving the students' writing achievement. Students are expected to learn how to write successfully by understanding the steps of the writing process. Teacher offers support to help them overcome these challenges who are tought trought CIRSA learning model. Thus, the theory of each variable in this research will be explained in the next chapter.

II. LITERATURE REVIEW

This chapter provides literature review related to the research problem. Concept of writing, aspects of writing, process of writing, teaching writing, Cooperative Integrated Reading and composition (CIRC), scientific approach, Cooperative Integrated Reading and Composition Based on Scientific Approach (CIRSA), theoretical assumption, and also hypothesis of the research.

2.1 Concept of Writing

Writing is crucial to be developed in teaching English. It is one of productive skills that can help students to communicate in written form. According to Harmer (2004), the written language is a true representation of the correct forms of language and should be valued and practiced. Puspita (2019) states that writing is a way to share or express the thoughts and ideas to others through written text with certain purpose in communication Therefore writing is as way of communication that must be valued and practiced to avoid misunderstanding both the writer and reader.

In addition, writing is complex skills that must be covered to achieve the purpose. According to Jayanti (2019), writing consists of several aspects that must be mastered such as content, form, grammar, style and coherent. It means that writing

activity relates to creating the content and form by using correct grammar and appropriate words. Those ways will create a good sentence that related with the others in one paragraph or text. So, the written text will enjoyable and construct same thought with the readers. Then, Nurfidoh & Kareviati (2021) state that writing process can allows someone to express their thoughts and feeling on paper by attention some components such as vocabulary, spelling, pronunciation and grammar. It means that someone can share what he knows and feeling through writing on paper by construct a sentence based on the good rules of language. It is clear from the explanation above that writing is a way of expressing thoughts and ideas on paper. In order to preserve the quality of the communication with readers, it is essential to pay close attention to the organization and the substance of the writing. Thus, the readers can easily comprehend the message and avoid the misunderstanding.

Writing is one of important skills which has to be mastered by the students because writing can help them to think critically and deeply to build a good writing. Writing is also necessary component of education, livelihood, and functional basics in our society. By learning writing, the students will get knowledge how to write effectively, how to express ideas, how to share their thoughts with anyone else through writing.

2.1.1 Aspects of Students' Writing Achievement

Creating good quality of writing should be the primary goal of a writer. Hence, in constructing writing especially essay, it is important to point out several fundamental principles such as idea development, sequence of words and sentences, and the use of proper languag (Taufik et al., 2016). Writing achievement is the result score of writing ability of the students. Writing achievement has a standard score from the teacher to be passed by the students in writing. Writing achievement is measured by a holistically scored writing sample.

Brown (2007) mentions that there are five aspects of writing process that need to be taken into account in order for authors to be successful in their writing, they are content, organization, syntax, vocabulary, and mechanism. In the same line, Heaton (1988) states that the aspects of writing are mentioned below:

1. **Content**. It is the substance of writing. It can be identified by paying attention to the topic sentence. Therefore, the topic sentence should accurately reflect the paragraph's key idea.
2. **Organization**. It refers to how the content is arranged logically (coherence). It has to do with how thoughts should flow organically together within a paragraph.
3. **Vocabulary**. It covers the use of words that are appropriate for the content.The diction employed to provide the reader the intended meaning might be used to identify it.

4. **Language use**. It emphasizes the employment of proper grammatical structure and syntactic pattern. It may be recognized by the way a well-formed phrase is constructed.
5. **Mechanics**. It addresses the usage of illustrative language conventions. By emphasizing the paragraph's use of capitalization, punctuation, and spelling, it can be found.

Through implementing the aspects of writing in the teaching and learning aspects has benefit for both teacher and students. The aspects help students to make good writing correctly. It also will improve their skills of writing and achieve the objective of teaching and learning process.

2.1.2 Process of Writing

The process of writing needs a lot of activities to generate the thought or ideas into sentences. In light with this, according to Harmer (2004) there are four elements of process of writing. Those are:

1. **Planning**. The three key topics must be considered by the writers. First, they must take into account the goals for the writing project because these affects, among other things, not only the kind of texts that would be produced but also the language they would use and the content that has already been selected. Second, they need to consider the reading audiences and the language used. Thirdly, writers must think about the content structure of the work, the optimum order in

which to present the information, concepts, or arguments they have already decided to provide.

2. **Drafting**. The first draft of a piece of writing is called a "draft," and it is frequently done with the intention of subsequently editing it. There may be several versions created before the final edition as the editing phase of the writing process progresses.
3. **Editing (Reflecting and Revising)**. Once after writers have produced their draft, then, usually, they read what they have written aloud to themselves to determine what works and what doesn't. The process of reflecting and rewriting is frequently aided by comments and ideas from other readers or editors.
4. **Final Version**. The writers have revised their initial manuscript, making the required modifications, to create their final product. Due to changes in the editing process, this may differ significantly from the initial idea and the first draft. Thus, students will find it simpler to construct writing and be able to produce a decent piece of written work by following to those processes. Consequently, teachers should think about implementing the previously mentioned strategies when instructing writing.

2.1.3 Teaching Writing

According to Dwi (2019), the close relationship between writing and thinking makes writing a valuable part of any language course. Through writing we can express our ideas and thought in our attempt to make meanings. It means that not

writing only, but we need to pay attention to several aspects of the writing, so the readers are able to getting point of ideas or messages.

In addition, Husna and Multazim (2019) claim that the teacher also must be able to describe the characteristics of written text types so that students can understand the differences between types of written text. Thus, the teacher must introduce them clearly in order to write correctly and provides feedback on student writing.

Nunan et al., (2003) assert that there are four instructional ideas for writing that can be applied in a variety of classroom situations in order to accomplish the above-mentioned purpose of teaching writing, as follows:

1. **Fully understanding the reasons behind students' writing**. The biggest problems with writing instruction arise when a teacher's objectives conflict with those of the students or with those of the school or organization where the student is enrolled. The learning objectives should be communicated to students in a way that makes sense to them.
2. **Giving students several opportunities to write**. Writing is a crucial skill that involves expressing one's ideas in written form. As a result, the instructor needs to assign writing assignments frequently. The students' writing skills will improve as they become more utilized to writing. As a result, the instructor should give students multiple opportunities to write by giving them different types of writing.
3. **Making input valuable and meaningful**. Students need to provide feedback. Assist students in developing their writing skills by giving them specific feedback.

Editing and reworking should be discussed while providing feedback on a student's writing. The teacher may offer a summary of comments instructing students to recognize the problems and resolve them on their own in order to foster independent inquiry.

4. **Clearly explaining to students how their work will be evaluated**. Students often think that the teacher evaluates their writing in a random way. This suggests that the writing standard and assessment should be known by the teacher. The teacher should consider various factors and ensure that each one is understood by students while assessing writing.

Moreover, Ibriza (2017) states that teaching writing extends beyond only teaching language proficiency. Students are expected to learn how to write successfully by understanding the steps of the writing process. When writing, students have a limited number of words on their product and must think quickly. Additionally, Grammar, language features, and writing mechanics should all be covered in the classroom in order to help students become proficient writers. Therefore, an appropriate strategy should be used to manage the problems mentioned above.

In conclusion, teaching writing is a process of teaching and guiding the students to make or produce a written text that can express their ideas or thoughts in correct way and rules. Besides, teachers need to be aware of the challenges that students have when writing and offer support to help them overcome these challenges. By applying

this particular writing instruction approach, teachers may be able to maximize their students' writing abilities and improve their writing performance.

2.2 Concept of Cooperative Integrated Reading and Composition (CIRC)

Cooperative Integrated Reading and Composition (CIRC) is a technique that follows cooperative learning principle. According to Durukan (2011), CIRC is a comprehensive technique for teaching reading and writing that assigns students to groups made up of pairs of students from two or more distinct levels. It means that CIRC can be implemented in teaching reading and writing by dividing the students into several groups or in pairs to find the solution or solve the problem related to the tasks or tests. It is in line with Susilo et al., (2021) who states that this technique offers the chance for students to interact with one another, exchange ideas and perspectives, practice and improve their abilities, and work through academic problems. It means that in there are group activities that give the opportunities for each member to work together and share their opinions or thoughts. The students can help each other when he gets the difficulties in finishing the task. So, the interaction of them can be built during the activity.

In addition, according to Thresia (2017) CIRC is made up of many teaching methods that help students enhance their communicative, academic, and social skills. The main characteristics of CIRC are derived from an examination of recent research on reading comprehension exercises, treasure hunt activities, and integrated language

arts and writing teaching are all effective ways to teach reading, writing, and language skills.

In summary, CIRC is one technique of cooperative learning that need group work in the process of teaching and learning. It also integrates reading and writing skills that helps students to find the solves of their tasks.

2.2.1 Procedure of CIRC

The main concept of CIRC is cooperative or group method in teaching and learning process. It deals with Taufik and Dola (2016) that in CIRC, students work in pairs on a variety of cognitively stimulating tasks, such as reading aloud to one another, making ending predictions, summarizing stories, and honing their spelling, decoding, and vocabulary. The students will be required to write a descriptive prose using one of their group members as a model. Because they will really view the object rather than merely imagining it, it will be simple for the students to describe it.

It is expected that teaching students how to produce texts using the CIRC technique will inspire them to write as much as they can. During the learning process, students are encouraged to take an active role and be happy. Additionally, the CIRC technique, which prioritizes reading and group work more, makes learning more relevant. Thus, it is possible to maximize students' learning of how to write text. The following steps are required to implement the CIRC technique as stated by Huda in (Syamsi et al., 2020) are:

1. **Step 1: Introduction to Concepts**. The teacher starts to present an original concept or piece of knowledge during this stage. The introduction can be found in textbooks, other media, or the teacher's knowledge.
2. **Step 2: Exploration and Application**. With the guidance of the teacher, this stage gives students the chance to demonstrate prior information, acquire new knowledge, and explain the events they experience. They must talk about it since it creates cognitive conflict. This phase's goals are to stimulate students' interest and curiosity and have them apply their foundational knowledge to learning activities. Writing exercises are used to put the notion into practice. Students are instructed to compile information on the topics they learn about into a draft (outline). Additionally, the draft is transformed into a finished piece of writing.
3. **Step 3: Publication**. Students can communicate the results of their writing throughout this stage. In order to enhance their work, students in this situation must provide and receive feedback in the form of criticism or ideas.

In line with it, Forsia (2018) states that CIRC involves two or more students or group who collaborate to complete a task through reading and writing. Each student in a group will be given a task, such as reading the story, identifying the subject or topic, and finding out the basic story. Then they develop a story's framework and present it to the class. Students create a new story that is relevant to the topic from the story's outline. Before presenting in front of the class, they collaborate to edit and revise their work. Students' thoughts will be stimulated through collaborative

integrated reading and composition techniques. They can exchange concepts that can serve as an opportunity for developing the confidence to put forward concepts and engage in group communication in English.

In summary, arranging the steps of CIRC to teach students is very important for teachers. The steps of CIRC in teaching writing of descriptive text are:

a. Teacher divides students into several groups consist of four to five students and asks students choose their own group leader
b. Teacher gives reading text related the material and ask students to read it.
c. Teacher and students identify the generic structure and main idea of the text.
d. Teacher gives writing task for each group to be discussed together in the group.
e. Every group presents the result of the discussion in front of the class
f. Teacher reviews and summarizes the materials and also help students to find the solution if there is a problem which cannot be done.

Based on explanation, by doing this cooperative activity the student's ability will be achieved easily. This technique accommodates students to work in group, write text together and check group understanding. It can be seen this technique demands student to actively join in learning activity.

2.2.2 CIRC and Students' Writing Achievement

The CIRC technique is a part of cooperative learning that is easy to implement, involves the activities of all students without having to have differences in status, and

involves the role of students as peer tutors. The primary goal of the CIRC program developers for writing and language arts lessons was to design, implement, and evaluate a writing process approach to writing and language arts lessons that would make the most of the presence of classmates. Responses from peer groups are a typical element of models of the writing process, but peer involvement is rarely a central activity.

Several previous studies have shown that CIRC is effective in improving students' abilities. Like as, the results of this study made researchers decide to use the Cooperative Integrated Reading Composition (CIRC) learning model in Indonesian language learning because the CIRC model is considered to be able to solve problems related to language learning (Yamin and Ika, 2022). Apart from that, CIRC also motivates students more than conventional learning (Kartika and Morelent, 2018; Melati et al., 2018).

2.3 Concept of Scientific Approach

Scientific approach is as a new method since in implementing curriculum 2013. It is focused on students centered rather than teacher centered. According to Indrilla (2018) this approach places more emphasis on the students' motivation to learn than on the transmission of knowledge. The teacher is viewed as a facilitator who supervises and guides the learning activities while the learners are considered as the learning subjects who must actively participate in the learning process. It means that

the teacher considers the students as the topic of the learning in a student-centered approach. The teacher should concentrate on the students' activities throughout the teaching and learning process and encourage them to be active learners by asking questions, developing and expanding their knowledge, exchanging ideas, and engaging in dialogue with one another.

2.3.1 Procedure of Scientific Approach

The students are directed to be competence in four language skills, speaking, listening, reading and writing. Besides, the language aspect such as vocabulary and grammar should be taught integrated in teaching the four language skills. The teaching and learning process were conducted using genre-based approach where students should have language skills in each type of text. The teaching learning process followed the steps of teaching using scientific approach as stated in Kemdikbud 2013 and Hosman (2014) as cited by (Zaim, 2017), explain the five processes involved in implementing a scientific method in the teaching and learning process, as follow:

1. **Observing**. In this stage, the teacher should provide the students to observe something related the materials. The teacher can give an object that can be listened, read, or watched by students. It can be done through audio, photos or pictures, or videos. Then, let them to observe the important things of the materials. In order to proceed to the observing steps, two main tasks need to be

completed. First, teachers provide lots of opportunities for students to observe. The object may be read concerning, listened about, or seen to make the remark. Second, teachers help the students conduct observations and teach them how to find out the key details in an object. The observation process consists of seven steps: selecting the object to be observed, deciding its goal, choosing the method of observation, limiting the object, carefully performing the observation, reporting the findings, and understanding the findings. The stage of observation plays a crucial role in guiding students to the stage after it, therefore by engaging in the activities, students' curiosity is also developed at this point.

2. **Questioning**. The function of questioning is to improve students' speaking, question-asking, and ability to respond logically and methodically while using proper grammar; to encourage students' participation in discussing, debating, and developing their capacity to think and draw conclusions; to foster the development of an attitude of willingness to give and receive opinions or ideas; to enrich vocabulary; and to improve students' ability to think and draw conclusions. As a result, at this stage, students research on their own to develop an idea, principle, technique, theory, or law based on the information they have studied. Discussions in groups or in class can be used to get it.
3. **Exploring**. The steps in exploration are planning, doing, and following up. Five things can be done when conducting exploring: 1) Dividing students into different groups 2) Asking them to discuss 3) Recording the results 4) Monitoring the learning process to make sure all students are actively

participating in the discussion 5) Guiding the group that needs help as sources. It aims to improve communication and information gathering skills from a variety of sources. The teacher offers worksheets, media, learning resources, and experimentation tools. As a result, the teacher's tasks at this level are director and controller, planning and supervising the activity of data collection and its process. While the activity is being completed, the teacher may provide feedback.

4. **Associating**. The capacity to assess and integrate information that happened within the group is known as associating. In order to draw conclusions from the patterns discovered, associating is the process of evaluating the information to identify relationships between different pieces of information and their patterns of interaction. Thus, students are expected to be able to relate the result of learning or experimenting to the reality they find.
5. **Communicating**. The capacity to draw conclusions from the facts that have been observed and tested is communication. There are four activities that can be used to communicate steps: (1) Reading student work aloud to the class; (2) Asking each group to pay close attention and offer additional commentary on the work of each group; (3) Providing an explanation following the conclusion of the group discussion; and (5) Structuring tasks and giving students opportunities to show attitude, skills, and understanding of the topic that's being covered. This can be conducted through dialogue and discussion between the teacher and students. As a result, the communication stage is where students present orally, in writing, or

in other ways, the findings of their observation, experimentation, and conclusion based on the analysis.

2.3.2 Scientific Approach and Students' Writing Achievement

In the 2013 curriculum, there are various types of texts that can be used to improve students' attitudes, knowledge and skills in communicating using English in accordance with the core competencies and basic competencies that have been set. Some examples of these text types are narrative, procedure, descriptive, report, procedural, news items, analytical exposition, persuasive exposition, spoof, explanation, discussion and review.

English language teaching in Curriculum 2013 combines a scientific approach and a text-based approach. The scientific approach is one of the effective approaches in the teaching, especially in the teaching of English language. The previous research is revealed that the use of the scientific approach is more effective than that of the traditional approach (Nugraha & Suherdi, 2017). Therefore, the use of the scientific approach is expected to be able to affect the students' ability in writing and to make the process of teaching and learning writing becomes the effective learning.

The scientific approach affect the students' ability in writing show to some extents. First, the finding shows that all the five stages of scientific approach were completely executed in four meetings of delivering one material or one Basic Competence eventhough the five stages were not always conducted in every meeting

which was different from lesson plan made. The teacher provided plenty activities in each stage. Scientific approach implemented by the teacher could engage students in active learning activities and develop various students' contributions. The ways the teacher led the active learning activities and students' contributions were varied depending on the stages. Scientific approach implemented successfully fostered students' critical thinking and developed high-thinking level of students' learning behaviour. Second, the difficulties encountered by the teacher during implementation were the problem on the students with low English proficiency, time allotment, and the teacher's teaching management.

2.4 Concept of Cooperative Integrated Reading and Composition Base on Scientific Approach (CIRSA)

CIRC is a comprehensive method for teaching reading and writing that assigns students to groups made up of pairs of students from two or more distinct levels. It means that CIRC can be implemented in teaching reading and writing by dividing the students into several groups or in pairs to find the solution or solve the problem related to the tasks or tests. Thus, the main characteristics of CIRC are derived from an examination of recent research on reading comprehension exercises, treasure hunt activities, and integrated language arts and writing teaching are all effective ways to teach writing at language skills. On the other hand, The scientific approach is recommended in the 2013 Curriculum in Indonesia. Indonesian educational process standard states that learning is conducted by selecting a scientific approach adjusted

to competence characteristics and level of education. Several activities in the scientific approach include observing, asking, trying, reasoning, and communicating (Djamahar et al., 2018).

A scientific approach-based Cooperative Integrated Reading and Composition or known as CIRSA has been developed. Research results indicate that CIRSA model has been stated as valid and effective to be applied in teaching learning and has potential to empower 21st-century skills. CIRSA, as one of cooperative learning manifestation, is believed to be capable of empowering students to participate in learning process actively. The activity could be skills in decision making, evaluating, and commenting to one another so as it could enhance writing achievement. CIRSA is a student-centered learning design base on scientific approach on reading and compositioning the result through writing the new topic. The learning has proven to be able to improve students' skills (Djamahar et al., 2019).

In the CIRSA learning model conducted cooperatively, learners are required to cooperate in a small group to discuss, analyze to understand and solve a variety of problems and encourage learners to communicate and exchange ideas; thus, it has potential for writing ability empowerment. One of the essential elements in cooperative learning is the occurrence of social skill learning concerning leadership learning, decision making, building trust, communication, and handling problems together. In cooperative work, providing learners with an opportunity to think with their peers and onduct discussion makes the thinking process becomes open to all learners. Training students to think critically through problem analysis method

repeatedly helps students to master complex contents as well as empowers the writing achievement. The CIRSA model would be difficult to implement in a large number of students since students will tend to be passive (Vakiroh, 2013). Also, there is time limitation regarding discussion process where large number of students require a more extended time. Therefore, the CIRSA model should be implemented in a class with number of students in a range of 20-35 students. A small number of students results in better discussion, and students tend to be active in question and answer.

2.4.1 Procedures of CIRSA

In order to use the CIRSA technique in writing class, the steps must be followed. The major objective of using the CIRC learning paradigm is to motivate students through cooperative groups created specifically to develop writing abilities. The steps of CIRSA are as follow:

1. **Conceptualizing in group division**. In this phase, students are given the picture and text relates the topic of procedure text. They must read the text well base on the teacher instruction
2. **Organizing to observe and question through Reading and Composition**. Students observe the picture and text that have given by teacher. They should understand them whether the text is appropriate with the picture or not. After that, they observe the structure of the procedure text. They may give questions to get the information relates the text.

3. **Guiding to explore and associate concepts into new concept**. In groups, students are given new pictures relates food or drink. They must select one as a material to make new text. They must understand the picture detail since they discuss each other. After that, they should arrange procedure well in written text.
4. **Presenting work with publication and discussion**. At the end, their result of discussion must be corrected by another group. In addition, the teacher gives the assessment rubrics of accuracy and grammar to each group. It aims to give the chance for students to assess other text. After that, teacher and students will communicate the problems that they are faced during the process and assessment. In addition, teacher gives some feedback and motivation to improve their skills.

2.4.2 CIRSA and Students' Writing Achievement

Several previous studies have shown that CIRC has been combined, integrated, and developed with other techniques. For example, Cooperative Integrated Reading and Composition (CIRC) Model with Aldiko Book Reader to Improve the Reading Comprehension Achivement of the Elevent Year Students of SMA Negeri 2 Parepare (Hasan & Jamalia, 2019). Then, the implementation CIRC developed RPG application is aimed to provide learning materials of reading skill in more attractive way to generate an innovative learning environment in which the students will not be uninterested in the learning process (Sofiana, 2016). Finally, study was produce a learning design as a product of a scientific approach-based cooperative integrated

reading and composition (CIRSA) media with a vision of empowering science literacy and metacognitive (Djamahar et al., 2018).

CIRC is most often found in research on learning methods to improve students' reading abilities (Maruf & Anjely, 2020; Royani et al., 2020). Whatever, CIRC and the scientific approach need to be developed to improve students' writing skills (Djamahar et al., 2018; Thresia, 2017). On other research, the results showed that CIRSA learning model had an effect on the students' metacognitive ability and proved superior to CIRC (Cooperative Integrated Reading and Composition) and conventional learning (Djamahar et al., 2019). So, CIRSA is suitable to be applied in writing class since this technique is appropriate with the curriculum that be implemented in the school. The process of CIRSA technique can lead students' active and critical thinking during the process of discussion to improve their skill. Thus, the goal of teaching and learning process will be achieved in the end.

2.4.3 CIRSA Learning Syntax and Writing Achievement

This research has focused on improving students' writing achievement with the process approach as the main activity in implementing the learning model. The initial effort that needs to be done to modify the learning model is to analyse the needs of students and teachers. With this analysis, the planned learning model can be arranged and developed according to the characteristics of the learners. The modification process continued to develop the learning syntax by integrating two learning approaches, namely the scientific approach into the cooperative CIRC type.

Based on the original CIRC procedure, several previous studies have applied it in teaching writing. The steps of CIRC in teaching writing of descriptive text are: (1) Group Division: teacher divides students into several groups consist of four to five students and asks students choose their own group leader; (2) Reading, Composition, and Discussion: teacher gives reading text related the material and ask students to read it; teacher and students identify the generic structure and main idea of the text; teacher gives writing task for each group to be discussed together in the group; (3) Publication: every group presents the result of the discussion in front of the class; and teacher reviews and summarizes the materials and also help students to find the solution if there is a problem which cannot be solved.

Meanwhile, the five processes involved in implementing a scientific method in the teaching and learning process, as follow: observation, question, exploration, association, and communication. So, the modified syntax of integrating CIRC with the scientific approach (called CIRSA) aims to develop an effective cooperative learning model to improve students' writing achievement in English lessons.

Tabel 2. 1 Link between CIRSA Learning Syntax and Writing Achievement

CIRC	Scientific Approach	CIRSA	Teaching Writing	Learning Activities
Step 1. Group Division	Step 1. Observing Students observe the material on the PPT slides	**Stage 1. Conceptualizing in group division**	Clearly explaining to students how their work will be evaluated	1. Students move according to the group that has been determined and choosen by their leader 2. Students listen to the explanation from the teacher and the steps of learning

				3. Students read the text related to the material
	Step 2. Questioning Students ask the material and the steps that are not clear	**Stage 2. Organizing to observe and question through Reading and Composition**	Fully understandin g the reasons behind students' writing	1. Students observe the reading text and compose the elements 2. Students discuss the results of reading text and composition the elements
Step 2. Reading, Compo-sitionig, Discussion	Step 3. Association Students associate the tasks in the worksheet with group members Step 4. Ekploration Students explore new concepts by modifying texts	**Stage 3. Guiding to explore and associate concepts into new concept**	Giving students several opportunities to write	1. Students work on the task by associating with all group members 2. Students explore several opportunities to write on the worksheet
Stage 3. Group presentation	Step 5. Communicati on Students present the results of group discussions in front of the class	**Stage 4. Presenting work with publication and discussion**	Making input valuable and meaningful	1. Students present the result of the discussion in front of the class 2. Students review and summarize the materials and also help the students to find the solution if there is a problem which cannot be solved

The integration of the two approaches resulted in the most important differences in the development of CIRSA from the original CIRC, namely: (1) the

existence of scientific roles in group divisions such as chairperson, presenter, main writer, editor, and reader, (2) resulting in 4 learning steps, and (3) student activities are adapted to the writing procedure. Finally, the modification of the learning model has produced learning tools products, such as; lesson plans, learning materials, learner worksheets, and assessment guidelines for writing tests. Meanwhile, the theme of the learning product is procedural text about food/beverage recipes developed for 3 meetings.

2.5 Concept of Students' Perception

Perception is one of the processes of cognitive behavior to make a sense about human, thing, or environment. Robbins and Judge (2016) states that perception is as a way to give everything around us a meaning through organize and analyze our sensory experiences. It means that perception is a process of organize and analyze what we see and feel relates to something in the world.

In addition, Students' perception is crucial to investigate into how student's feel about the use of a certain teaching method since it will show whether or not the method is effective and appropriate for the needs, characteristics, and instructional aim of the students. Talis et al. (2018) argue that one of the ways that students can rate the teacher is by sharing their opinions. The teacher will be able to determine what students need to learn through perception. For teachers to be more effective in

their instruction, the perception study is helpful. It means that investigating students' perception can help them sharing their opinion relates their feelings after the process.

In line with it, Saputra (2018) assumes that perception is one of evaluation process that determines the perception that happen surrounds them. Thus, the interaction and interaction will be good when the students have positive perception. It means that students' perception about the implementation of the technique can be resulted after they evaluate the technique that is implemented in the classroom. Thus, Jumiaty et al. (2021) states perception is the process of comprehending information to create a sense of the environment. It means that perception is a process to make a sense related the event or environment.

From the explanation above, a thorough exploration of students' perceptions not only enables teachers to gauge the effectiveness of their instructional methods but also empowers students by providing them with a platform to express their thoughts and feelings. By incorporating insights gained from perception studies, educators can adapt their teaching strategies, creating a more engaging and student-centric learning atmosphere. In this way, the cyclical process of perceiving, evaluating, and adapting contributes to the continuous improvement of the teaching and learning experience.

2.5.1 Aspects of Students' Perception

Perception relates to person assume that include some aspect. According to Goldstein (2010), there are three aspect of perception. Those are:

1. **Attitude**. It is the ability to react in a specific way as a result of temperament and experience. It means that attitude is the process of seeing and how we behave it. It can include thought, feeling and action. Students who have good attitude in teaching and learning, they will give positive perception about it.
2. **Experience**. It is a memory relates to something that happened. It can influence a perception. Students who have good experience in the past relates method, media and environment in teaching process, they will be enjoy and remember it. Thus, they have positive perception.
3. **Behavior**. It is an action about something. It can be influenced by feeling, thought, and environment. When students have good behavior, they will have positive perception

Further, in evaluating teaching technique emphasizes several aspects such as preparation, presentation, method, teacher-students' interaction, and students' satisfaction. There would be how well the teacher prepare the classroom, present material during the process, select the appropriate method to facilitate and support the students and interact with students during the process in the classroom. Then, how well the students are satisfaction after being treated by CIRSA technique. The students give their perception about each aspect which is formulated in the questionnaire. Further, those aspects above are used as the indicators for measuring students' perception about the implementation of teaching CIRSA model.

2.5.2 Students' Perception and Writing Achievement

In teaching academic writing, various approaches are available. One of the strategies is using cooperative learning. Along with improving their writing abilities, EFL students benefitted from the cooperative learning environment by developing their linguistic proficiency. Meanwhile, Lukman et al. (2022) conducted a study to investigate the correlation of students' perception and their English learning achievement at senior high School. The finding showed that students' perception has very weak correlation toward their English learning achievement.

Through the psychological process of perception, which is in accordance with the experience gained through the five senses, people can filter reactions into good or negative views. Responses are obtained through the processes of selection, interpretation, and reaction. From the concept, we realize that perception is internal recognition that particular people give to certain things, phenomena, or in this case learning processes.

In understanding perception, the teacher can filter which area needs to be improved, the type of learning that probably is judged as compulsory but less necessary for the personal well-being of the student. Then, the teacher can plan or re-plan a better strategy which can finally improve students' writing achievement. For instance, we take an example of the importance and concern of students' perceptions as it will generate a positive result for our students. Previous study claimed that students' perceptions about learning in school significantly impact their academic

achievement (Utami et al., 2022). Regarding academic writing, it is an important or compulsory course that students need to take to proceed to the next level.

2.6 Theoretical Assumption

Learning to write can help students to engage thinking activities. This can be seen in daily life activities when they need to write memos, letters, notes, brochures, articles, cover letters, and many others. Written texts have a number of conventions that separate it from speaking, reading, or listening. In general, the problems of writing achievement are caused by two factors, namely internal factors and external factors. First, internal factors, which include students' willingness and ability to write, are still low. As stated above, students have not been able to convey their bright ideas and ideas in good writing. Second is external factors, which greatly affect students' achievement in writing. One of these factors is the use of conventional learning model, teacher-centered learning design that is unable to improve students' creativity in writing. It teaching methods are not able to improve students' ability in writing. So, learning model has an important role in learning activities because it can support the learning process which is reflected in student achievement after they are evaluated.

CIRSA, as one of cooperative learning manifestation, is believed to be capable of empowering students to participate in learning process actively. CIRC is a student-centered learning design focusing on critical study assignments on reading and presenting the result through class presentation. One effort to accelerate one's cognitive development is by involving and providing an environment suitable for the

cognitive stage. So, in the CIRSA learning model conducted cooperatively, learners are required to cooperate in a small group to discuss, analyze to understand and solve a variety of problems and encourage learners to communicate and exchange ideas; thus, it has potential for writing ability empowerment. One of the essential elements in cooperative learning is the occurrence of social skill learning concerning leadership learning, decision making, building trust, communication, and handling problems together.

CIRSA learning model contains study habituation that allows students' writing empowerment by compiling questions, answering, and discussing answers through cooperative learning. The cooperative-based activities are capable of training learners to ask and make questions; hence, writing achievement are well developed. The condition is following CIRSA learning model syntax that after the learners were given with assignments of analyzing contextual procedure text and investigating the content from various sources where they had a responsibility to create a complete conclusion and problems occurred were written on the students' worksheet and presented during a discussion to be solved together. Students' writing achievement can be improved through students' willingness and ability to write, are enhance.

Meanwhile, the theoretical assumption that underlies the improvement of students' writing achievement above through the implementation of the CIRSA learning model is constructivism learning theory. Constructivism is a philosophical learning theory that develops students' logical and analytical abilities based on their experiences and the surrounding environment. The basis of this theory is that an

individual's real-life experiences play an important role in their educational process. The constructivistic view suggests that the learning environment is very supportive of the emergence of various views and interpretations of reality, the construction of knowledge, and other activities based on experience. So, learners must be active during learning activities, actively thinking, conceptualizing, and giving meaning to the things they are learning, but what most determines the realization of learning symptoms is the learning intention of the learners themselves. While the role of the teacher in constructivistic learning is to help so that the process of constructing knowledge by students runs smoothly.

Ultimately, the success of the CIRSA learning model in improving students' writing achievement lies in the active involvement and intention of the learners themselves. The role of the teacher, within the constructivist paradigm, becomes that of a facilitator, guiding the process, supports the diverse perspectives and interpretations of reality, facilitating the construction of knowledge.

2.7 Hypotheses

In this study, there are three research questions that serve as the main focus. However, in the statistical analysis process, only two hypothesis tests are conducted to address the research problems. These two hypothesis tests are designed to examine statistically significant relationships or differences related to specific research questions. Furthermore, one other research question is rather focused on

understanding and exploring the characteristics or patterns within the collected data. Referring to the elaboration of the theories and some previous studies, the researcher formulates the hypotheses as follows:

1. There is a significant difference in students' writing achievement who are taught using CIRSA and CIRC learning models.
2. There is a significant difference each aspects of writing the two techniques.
3. There is a significant correlation between students' perception and the students' writing achievement.

In brief, this chapter explains the concept of each varible in this research, namely students' writing achievement, cooperative integrated reading and composition (CIRC), scientific approach (SA), CIRC-Based on SA (CIRSA), relationship between concepts, and underlying theoretical assumptions, and hypotheses based on the literature review. Therefore, the explanations of method will be explained in the next chapter.

III. METHODS

The most fundamental part of conducting a research was determining the method. Thus, this chapter came up with research design, setting, subject of research, data collecting technique, research procedures, research instrument, reliability and validity of instrument, rubric scoring system, data analysis, data treatment, and hypotheses testing.

3.1 Research Design

The approach designs in this research used quantitative research. This type of approach was mostly used by researchers who were based on the philosophy of positivism. The positivist perspective assumed that reality was objective and can be observed and measured and the results of predictions and explanations can be generalized. In addition, methodological assumptions involved a deductive process, relationships between variables, cause and effect, static designs have been determined before the research. Afriana et al. (2022) state that quantitave research designed structured and systematically. Therefore, research was limited to the aim of answering questions from the problem formulation by developing hypotheses.

Based on the approach used in the quantitative research above, the research method used quasi-experimental. This category of design was most frequently used when it was not feasible for the researcher to use random assignment. As stated previously, quasi-experimental designs were commonly employed in the

evaluation of educational programs when random assignment was not possible or practical (Gribbons & Herman, 2011).

This research used types of quasi-experimental designs including the pretest-posttest design. At the start of the study, the researcher empirically assessed the differences in the two groups. Therefore, if the researcher found that one group performs better than the other on the posttest, it can ruled out initial differences and normal development as explanations for the differences. In this design, the experimental group took part in some type of treatment or intervention which can consist of single or multiple training sessions. The design also included a pretest and a posttest, in which both the experimental and control groups participate. The purpose of the pretest was to ensure the comparability of the two groups prior to the treatment; whereas the posttest allowed the researchers to determine the immediate effects of the treatment on the outcome variables.

In addition to the pre-test and immediate post-test, a delayed post-test or posttests were often included to examine the effects of the treatment over the longer term. The inclusion of the control group enabled researchers to determine whether any observed changed from the pretest to the posttest in the experimental group were the result of the experimental treatment or can be attributed to other correlations such as testing effects or maturation. As both experimental and the control group took the tests at the same time, time-related confounds were minimized (Rogers & Révész, 2019).

Tabel 3. 1 Schematic Quasi-Experimental Pretest-Posttest Design

Sample	Design
Experimental Group	O X1 O
Control Group	O X2 O

Source: adapted Rogers & Révész, 2019

This study conducted in two classes. During the first phase, students' involvement in learning English were measured by their gain scores obtained at pre-test and post-test. More specifically, in this phase, quantitative data were collected by employing one between and two within factor repeated measures design. The between factor (method) had two levels: (a) the experimental group (treatment 1), and (b) the control group (treatment 2). One within factor (test time) had two levels: (a) pretest, and (b) posttest, and the other within factor writing achievement had two levels.

This research employed quasi-experimental pretest-posttest design to investigate the significant difference of students' writing skill after being tought through Cooperative Integrated Reading and Composition based on Scientific Approach (CIRSA). Thus, before the quasi-experiment was performed, reseacher prepared two lesson plans for the subject of writing prosedure text. The first term included the modified CIRSA technique was used to treat the experimental group, whereas the second ones included the original CIRC technique was used on the control group.

Tabel 3. 2 The Research Design

Sample	Pretest	Treatment	Posttest
Experimental Group	Pretest measuring of students' writing achievement	Implementation of CIRSA Learning Model (3 Meeting)	Posttest measuring of students' writing achievement
Control Group	Pretest measuring of students' writing achievement	Implementation of CIRC Learning Model (3 Meeting)	Posttest measuring of students' writing achievement

Source: own research, 2023

In this research, there were two hypotheses testing to answer research questions. To obtain the answer of the first research questions, the data were aimed to investigate significant difference in students' writing achievement taught through CIRSA and CIRC used *Independent Group T-test*. Then, the *simple linier regression* were used to analyze the third research question to know correlation of students' perception about the teaching method and their writing achievement In addition, testing the first hypothesis will strengthen the answer the third problem formulation of this research which analyzed of the mean of each aspect of measuring students' writing achievement in the experimental and control classes.

In brief, two hypotheses testing were stated with the alpha level at 0,05. To carry out the Independent Sample T-test, the conditions were that the data had a normal distribution which was tested using the Shapiro Wilk, Lilliefors or Kolmogorov Smirnov Normality Test and must be homogeneous and tested using the homogeneity test. Meanwhile, the research tool used in this research was

software programs and applications of statistical analysis software, it was known as IBM SPSS 26.

3.2 Setting

This research was carried out at Madrasah Tsanawiyah or Islamic Junior High School level in Central Lampung Regency. Its regency was chosen as the location for this research for various reasons. Central Lampung is the largest district of the 15 districts in Lampung Province. This district has a total area of 4,789.82 km2. This area has great potential for the development of Central Lampung. On the other hand, Central Lampung Regency has the largest number of Madrasah Tsanawiyah, namely 99 madrasas spread across 29 sub-districts.

Then, the research location was set at MTs Bustanul 'Ulum Jayasakti. It was the Islamic schools in Central Lampung that has been established for around 30 years (since 1977). This school had a total of 822 students. With this, MTs Bustanul ‘Ulum Jayasakti was a junior high school with the second largest number of students in the western region of the district. Then, this school has an accreditation rating with B predicate. This means that this school has sufficient national educational standards. Apart from that, this school has quite satisfactory academic and non-academic achievements. In the field of English, this school often got the best achievement in English speech contest at the western district level. In fact, MTs Bustanul 'Ulum Jayasakti has 32 study groups with details of 12 class at seven grade, 12 class at eight grade, and 8 class at nine grade.

In this study, research time was needed to complete the research stages. The research time was carried out starting from the proposal preparation plan to the research results report along with the times for improvements based on suggestions and discussions. Meanwhile, this investigation begun to be submitted in July 2023 and submitted in December 2023. So, the total time required reached 6 months. The research time was divided into three major stages, namely the preparation stage, research stage and analysis stage.

3.3 Population and Sample

3.3.1 Population

Population was the scope of a number of objects or subjects that have certain qualities and characteristics. Based on the definition, population can also be defined as a group of humans or non-humans with certain characteristics that are almost the same (Sugiyono, 2016). The research population was all ninth-grade students at MTs Bustanul ‘Ulum Jayasakti with a total of 218 students and spread into 8 classes. Each class received a similar learning opportunity yet different treatment based on the developed learning design. Ideally, this research should be carried out by a census so that the research results are more reliable. However, limited personnel and time meant that this research could not take all elements of the population. Due to the large number of schools and cost efficiency (economy and feasibility), the researcher considered to get the sample by selecting the intact group.

3.3.2 Sample

Sample is part of population. According to Sugiyono (2016) sample is part of the number and characteristics of the population. Samples can be determined based on considerations of problems, objectives, hypotheses, methods and research instruments, in addition to considerations of time, energy and funding. The samples of this research are in accordance with the applicable methods so that they were truly representative. Several suggestions from other studies suggest that a reasonable sample size was between 30 to 500, each sample category was a minimum of 30. The sampling technique in this research used purposive sampling technique. This technique was a data or sampling technique so that all data was not likely to be selected as a sample equally based on the researcher's policy in determining the sample elements to be used..

The researcher considered to get the sample based on the same level of students' proficiency and skills in English subject. Each research group represented one class, which was class using CIRC and CIRSA. In this study, IX D class was as the control class (using CIRC) with 30 students, while IX C served as the experiment class (Using CIRSA) with 30 students. Both classes were regular classes at the same level. Moreover, the subjects were chosen those who were considered to be in intermediate level and were well-versed in their vocabulary and grammatical structures.

Tabel 3. 3 Profile of Respondents Based on Gender

Gender	***Experiment Class***	***Control Class***	***Summary***	***Percentage***
Male	16	15	31	**52%**
Female	14	15	29	**48%**
Amount	**30**	**30**	**60**	**100%**

Source: primary data processed, 2023

The gender element in this sample has been very representative of the current research. Judging from the two classes used as the object of research, all students have taken the pretest, the learning process until the end, and completed the posttest given. Based on the table above, the number of male respondents were more (52%) than female (48%), but there was not too much difference between the numbers of both. Then, the profile of respondents based on age has seen that the age of 15 years old dominates it with 48%. The detail information can be seen in table 3.4 below.

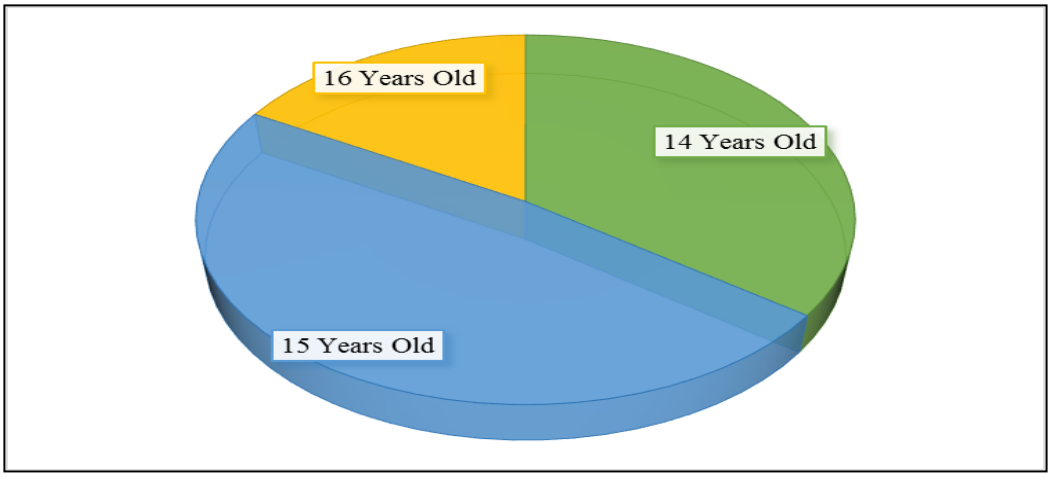
Tabel 3. 4 Profile of Respondents Based on Age

Age	***Experiment Class***	***Control Class***	***Summary***	***Percentage***
14 Years Old	11	10	21	35%
15 Years Old	15	14	29	48,3%
16 Years Old	4	6	10	16,7%
Amount	**30**	**30**	**60**	**100%**

Source: data processed, 2023

There were three categorizes of students' ages, such as 14, 15 and 16-year-old. The more description of them can be seen on the Figure below:

Figure 3. 1 Percentage of Respondents Base on Age



In summary, It can be concluded that based on the profile of the sample representing the current study, it can be seen that males were the most numerous and showed that the most students were 15 years old. If viewed from the ideal minimum number of sample for quantitative research, then the current sample have fulfilled the required quota.

3.4. Research Procedures

In conducting a study, the researcher needed to arrange and follow some steps so that the research can be done well and sequentially. Hence, the procedures of this research were as follows:

1. **Determining Problems**. The problem was identified by the researcher's observation of the learning process at MTs Bustanul 'Ulum Jayasakti. The author found that the English teachers used textbook and Power Point as the teaching media. The learning process was mostly teacher-centered that the

teacher explains the whole material. After that, the students were directed to do the task in their textbook which basically asking them to answer questions. Thus, the learning process became less meaningful as the students rarely perform their productive skill. This case also became the background for the researcher to conduct this study which employs CIRC based on scientific approach (CIRSA).

2. **Selecting Population and Sample**. The population of this research was ninth-grade students in Bustanul 'Ulum Junior High School with a total 218 stufdents in 8 classes. The researcher chose two classes which consist of approximately 30 students to be experimental and 30 students control groups.
3. **Determining Materials**. The material was based on junior high school syllabus which focuses on making procedure text. Teacher gave example text relate procedure text to build students' knowledge and writing achievement.
4. **Administering Pre-Test**. A pretest was administered to the students at the first meeting. The purpose of this test was to know the students' prior knowledge and ability in writing before receiving the treatment from the teacher. The students were asked to make writing based on the topic and instruction given by the teacher.
5. **Conducting Treatment**. The treatment was run after the students get their pretest. There were three meetings for giving the treatment. The control group students used CIRC in the classroom while the experimental group had CIRC based on Scientific approach (CIRSA). At the end, the students from both groups were asked to create writing based on the given topic that should be

submitted to the teacher. Moreover, the teachers assesed students' work based on the aspects of writing and gave some input to each student during the learning process.

6. **Administering Post-Test**. After receiving treatment, the students took another test to evaluate their writing performance. This second exam was a writing task that must be submitted after following the learning process and having group discussion. The test was similar to the first test taken by the students before in different topics based on the issues discussed during the discussion process.
7. **Distributing Questionnaire**. To find out students' perceptions towards the implementation of the CIRC based on the scinetific approach (CIRSA), the questionnaire was administered. The students have to answer ten statements.
8. **Analyzing the Result**. All tests were assessed according to Jacobs' writing criteria. Then, the scores were compared to see students' progress from the first test to the second test. However, there were two raters who examine all of students' writings from two tests. The first rater was the author herself and the second one was English teacher at school. The students' scores were analyzed using statistical software.

3. 5. Data Collection Techniques

Data collection techniques were needed in this research to collect a number of facts and information related to the existing problem. Before discussing the technique, data collection was seen from the type and source of data. Based on the

source, the type of data was divided into two, namely primary data and secondary data. In primary collection techniques data, the researcher used some methods which were test and questionnaire. In secondary collection techniques, data that was obtained indirectly and the data collector received it from other people and through documents.

3.5.1 Writing Test

Tests are instruments designed to measure specific characteristics or abilities, such as intelligence tests, achievement tests, personality assessments, and proficiency tests. Test in this research was used to answer the first and second research questions. In administering the pre-test and post-test, the researcher designed the writing test achievement guide test to make student understand the instruction easily. Then, the teacher assesed it based on the students' writing achievement aspects; content, organization, language use, vocabulary and mechanism (Heaton, 1988).

The collected data were the scores obtained from pretes and posttest that are given to both control and experimental group. The writing test score pretest aims to see the students' writing achievement before conducting treatment. On the other hand, The writing test score posttest were used to measure wether the implemented learning model correlations the experimental group or not. The test used in this study is in the form of essay questions to write one text procedure given 2 choices of drink/food recipes.

3.5.2 Questionnaire

Questionnaire was used to answer the third research questions. Questionnaires was very appropriate formeasuring students' perception of implementation CIRSA learning model. Setiyadi (2018) explain that this type was a direct data collection technique by providing written statements in an instrument and respondents answer a list of these statements. Questionnaires can be in the form of questions or statements, either closed or open, can be given to respondents directly (face to face), sent via goods delivery services, or can also be done online. The questionnaire administration technique in the current research was chosen appropriately to be effective and efficient.

Questionnaire in this research was created with a closed nature so that it would be easier for respondents to understand statements and choose answers according to their individual perceptions. Questionnaire key insights derived from three distinct indicators: (1) the perspective of the technique (i.e statement 1,2, and 3), (2) practical knowledge of facts about the application of the technique (i.e statement 4, 5, and 6), and (3) the seriousness of students in responding to the technique (i.e statement 7, 8, 9, and 10). The provided statistical data represents the responses of students to statements about their perceptions of the CIRSA learning model. Each statement is followed by the distribution of responses among different categories, i.e (1) Strongly Disagree as SD, (2) Disagree as D, (3) Neutral as N, (4) Agree as A, and (5) Strongly Agree as SA.

3.6 Instruments

In research, an instrument refers to any tool, device, or technique that is used to collect data or information for the purpose of study, analysis, and measurement. Instruments can take various forms, and they are essential for ensuring that the data gathered is reliable, valid, and relevant to the research objectives. The choice of instruments depends on the research questions, objectives, and the nature of the data being collected.

Before the instruments in this research are used on the experimental and control group (actual research subjects), a pilot test needs to be carried out. A pilot test is a small-scale initial study carried out to determine the research subject's level of understanding of a given case. This pilot test was carried out involving 30 students outside of the main sample. The results of the instrument in this pilot test were also tested for the level of validity and reliability. If the results of the pilot test still contain items that are felt to be less valid or confusing for respondents, then the researcher will make improvements to the instrument before conducting the actual research.

3.6.1 Instrument of Teaching and Learning Process

The independent variable instruments consisted of syllabus, lesson plan, and students' worksheet developed, referring to the learning objectives of CIRC and CIRSA by the theme Procedure Text; Food/drink recipes and manuals. As for compiling a learning tool instrument, it can be done using the following steps: 1) Determine the basic competencies to be measured, 2) Determine the indicators, 3) Write lesson plan, 4) Review the learning instrument, 5) Revise, 6) Trial , 7)

Analysis, 8) Revision. For certain circumstances, the instrument can be used if it has fulfilled step 5

Tabel 3. 5 Learning Objectives of Procedure Text; Food/drink recipes

Basic competencies	Indicator
Apply text structure and linguistic elements to carry out the social function of procedural texts by stating and asking about recipes and manuals, short and simple, according to the context of use.	• Recite each word from several food/drink recipe texts with correct pronunciation and word stress • Analyze and identify the characteristics (social function, text structure and linguistic elements) of a text.
Prepare procedural texts, oral and written, short and simple, in the form of recipes and manuals, text structure and linguistic elements that are correct to the context.	• Compile procedural texts by paying attention to the structure and linguistic elements of procedural texts in short and simple written form

Source: Syllabus of English nine-grade, 2019

3.6.2 Instrument of Students' Perception

In administering the questionnaire, the researcher used instrument of students' perception adapted from Heri (2018) and Goldstein (2010). Questionnaire is aimed to see the students' perception about implementation of CIRSA by Likert scales. Its scale are used to measure the degree of agreement or disagreement with a statement. Respondents select from a range of response options, typically ranging from "strongly agree" to "strongly disagree". This instument examined the relationship between students' perceptions and students' writing achievement.

This research was conducted by distributing questionnaires directly to the respondents of the experimental class (IX C grade by CIRSA learning model) at MTs Bustanul 'Ulum Jayasakti Anak Tuha Central Lampung. The number of questionnaires distributed was 30 copies. The returned instruments were the same number, namely 30 copies (100% response rate). There were 30 copies of questionnaires that were complete and suitable for analysis in this study.

Tabel 3. 6 Specification Table of Students' Perception Questionnaire

No	Indicators	Aspects	Item Number	Total
1	The perspective of the technique	English Attitude	1,2,3	3
2	Practical knowledge of facts about the application of the technique	Experience	4,5,6	3
3	The seriousness of students in responding the technique	Behavior	7,8,9,10	4
Total Number of Item				**10**

Source: developed from Heri, 2018

3.6.3 Instrument of Students' Writing Achievement

The dependent variable instruments in this study employed two kinds of test namely pretest and posttest to obtain the data of students' writing achievement. Pretest was administered to the students at the first meeting before they receive treatment using both methods. Then, at the end of the lesson, the students were required to have posttest. Both the pretest and posttest were in the form of writing tests that will be done by control and experimental groups. Their writing texts

were assessed by the two raters and the scores were analyzed in order to answer the research question.

The students' writing achievement was assessed by two raters, they were the researcher and an English teacher from MTs Bustanul 'Ulum Jayasakti. The raters utilized a scoring rubric created by Heaton (1988) to get the final scores of students' works. This scoring system was chosen because it provided a comprehensive framework for assessing five writing aspects such as content (ideal score is 30), organization (ideal score is 20), vocabulary (ideal score is 20), language use (ideal score is 25), and mechanics (ideal score is 5). This instrument used for a clearer understanding the difference aspects of writing achievement in the both of class (experimental class by using CIRSA and control class by using CIRC).

3.7 Validity

The validity of the instruments adopted in a study must be verified by the researcher. As mentioned by Setiyadi (2018) the most important consideration to make while constructing an instrument is to justify whether the tool being used is valid and reliable. The most important criterion, validity, describes how closely an instrument measures what it aims to assess. Utility is another word for validity. The validity of a measurement is how well it reflects the actual differences between the groups being evaluated. It means that the validity of an instrument has to show how well that instrument measures what is supposed to be measured. The validity of an assessment instrument is the level of validity of the data or the

accuracy of the instrument for measuring variables. Another definition, instrument validity is the degree of the instrument's ability to reveal data in accordance with the problem to be studied. Meanwhile, validity is divided into content and constructs validity.

3.7.1. Content Validity

To demonstrate content validity, the researcher investigated the degree to which a test was a representative sample of the content of whatever objectives or specifications the test is originally designed to measure (30 students besides the sample). It meanst that a measuring instrument's validity refers to how well it covers the subject being studied. Content validity includes the relevance of the statement to its conceptual and operational description, as well as how good the language structure and sentence simplicity are in explaining the statement (Ihsan, 2015). In this research, the researcher examined the test based on the learning objectives stated on the syllabus made by the teacher in order to compose the material and activity. Thus, the content validity of the research was carried out through intensive discussions with teacher, supervisors, and discussants.

3.7.2. Construct Validity

The general concept of validity is traditionally defined as "the degree to which a test measures what it claims, or purports, to be measuring". It means that the extent to which test results can be explained by the explanatory structures of an accurate theory is known as construct validity. Indar (2016) adds that the

development of construct validity involves not just rational analysis but also the study of the empirical evidence provided by test participants who are students. As a result, in order to allow test results to be interpreted effectively, the technique involves making clear what is being tested as well as all factors affecting test scores. Analyzing theoretical and empirical data can demonstrate that a construct and test subjects' responses are consistent.

The construct validity measured is not only the instrument of students' writing achievement, but also questionaire from students' perception of implementing CIRSA model. In validity measurement tests, there are two types. First, correlating the scores of questions (items) with the total items. Second, correlate each item indicator score with the total construct score. The construct validity testing in this research used IBM SPSS version 26 software.

As for the basis of decision-making in this validity test, it can be done through the following: If the calculated r value > critical r table, then the questionnaire item is considered valid. On the other hand, if the calculated r value < critical r table, then the questionnaire item is considered invalid. Furthermore, if the two-tailed significance value (Sig.) < 0.05 and the Pearson Correlation was positive, then the questionnaire item was deemed valid. The critical r value for 30 respondents with degrees of freedom (Df) equal to 28 is 0.374.

a. Validity of Students' Writing Achievement Test

The analysis results in Table 3.7 below showed the calculated r-values for each questionnaire item, the critical r-table value (0.374), the significance level

(Sig.), and the conclusion regarding the validity of each item. The validity of each item was confirmed both through the comparison with the critical r-table value and the significance level criteria. The following were the results table of validity writing achievement test.

Tabel 3. 7 The Validity Test of Students' Writing Achievement

Item	r-value	r-table	Sig.	Validity	
Content	0.856	0.374	0.000	Valid	Significant
Organization	0.758	0.374	0.000	Valid	Significant
Vocabularies	0.839	0.374	0.000	Valid	Significant
Language Use	0.801	0.374	0.000	Valid	Significant
Mechanicms	0.653	0.374	0.000	Valid	Significant

Source: Data Analysis, 2023

b. Validity of Students' Perception Questionnaire

The analysis results in Table 3.8 below showed the calculated r-values for each questionnaire item, the critical r-table value (0.374), the significance level (Sig.), and the conclusion regarding the validity of each item. Based on the results, all items exhibit calculated r-values higher than the critical r-table value, and their significance levels were below 0.05, they indicated that all items were valid. The validity of each item was confirmed both through the comparison with the critical r-table value and the significance level criteria. The following were the analysis results table regarding the validity of the student perception questionnaire.

Tabel 3. 8 The Validity Test of Students' Perceptions Questionaire

Item	*r-value*	*r-table*	*Sig.*	*Validity*	
1	0.567	0.374	0.001	Valid	Significant
2	0.477	0.374	0.008	Valid	Significant
3	0.625	0.374	0.000	Valid	Significant
4	0.591	0.374	0.001	Valid	Significant
5	0.544	0.374	0.002	Valid	Significant
6	0.578	0.374	0.001	Valid	Significant
7	0.630	0.374	0.000	Valid	Significant
8	0.756	0.374	0.000	Valid	Significant
9	0.487	0.374	0.001	Valid	Significant
10	0.592	0.374	0.001	Valid	Significant

Source: Data Analysis, 2023

3.8. Reliability

Kusumarajni (2022) states that reliability is as measurement consistency or the extent to which a measurement may be made on similar subjects over time but still produce a consistent result. It means that reliability can defines as procedure of instrument evaluation to provide results that can be trusted. Since the instruments used in this research are writing tests, the researcher employs *inter-rater reliability* to examine the consistency of the test. Therefore, the researcher cooperates with a writing teacher at school to evaluate students' writing using the aspects put forward by Heaton (1988). Thus, the reliability is acquired from the students' scores given by the two raters after being compared.

Another way besides using Product Moment calculation is to look at the Cronbach's Alpha level. Cronbach's Alpha formula is accepted, if the calculated r

calculation > r table 5%. The basis for decision-making in the reliability test is as follows: If the Cronbach's Alpha value > 0.60, then the questionnaire is declared reliable or consistent. On the other hand, if the Cronbach's Alpha value < 0.60, then the questionnaire is considered unreliable or inconsistent. After finding the coefficient between raters, the researcher analyzed the coefficient of reliability with the standard of reliability (Arikunto, 1998: 260) below:

a. A very low reliability (range from 0.00 to 0.19)

b. A low reliability (range from 0.20 to 0.39)

c. An average reliability (range from 0.40 to 0.59)

d. A high reliability (range from 0.60 to 0.79)

e. A very high reliability (range from 0.80 to 0.100)

3.8.1. Reliability of Students' Writing Achievement Test

The researcher conducted a reliability test to ensure that the questionnaire used in this study is truly reliable as a data collection tool. In statistical analysis in research, a reliability test served to determine the level of consistency of a test used by the researcher, making it a dependable instrument for measuring research variables, even when the research is conducted repeatedly with the same test.

Figure 3. 2 The Reliability Test of Students' Writing Achievement

Reliability Statistics

Cronbach's Alpha	N of Items
,824	5

When confirmed with its reliability category, the reliability level was within the "very high reliability" range, which was from 0.80 to 1.00. With the highest reliability value found in item macanics (0.833), followed by item organization (0.791) and item language use (0.787). The analysis results in Figure 3.2 above showes the conclusion regarding the reliability of each item. For further details, the analysis of reliability values for each item can be seen in the following Figure.

Figure 3. 3 The Reliability of Each Item Writing Test

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Content	43,67	34,851	,732	,753
Organization	46,20	40,786	,609	,791
Vocabularies	46,03	36,516	,714	,758
Language Use	45,73	36,409	,636	,787
Mecanics	56,77	53,426	,593	,833

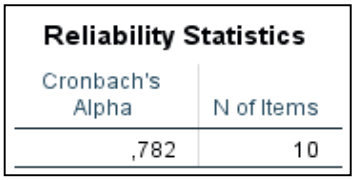
Source: Output of SPSS 26 Version, 2023

3.8.2. Reliability of Students' Perception Questionnaire

From the output Figure 3.4 below, it was known that there were N of Items (the number of items or questionnaire questions) with a total of 10 items, and the

Cronbach's Alpha value was 0.782. Since the Cronbach's Alpha value of 0.782 > 0.60, according to the basis for decision-making in the reliability test mentioned above, it can be concluded that all 10 questionnaire items for the variable "students' perception in implementation" were reliable or consistent.

Figure 3. 4 The Reliability of Students' Perceptions Questionaire



Reliability Statistics

Cronbach's Alpha	N of Items
,782	10

When confirmed with its reliability category, the reliability level categorized the "high reliability" range, which was from 0.60 to 0.79. With the highest reliability value found in item number 2 (0.781), followed by item number 1 (0.775) and item number 9 (0.772). The analysis results in Figure 3.14 above showed the conclusion regarding the reliability of each item. For further details, the analysis of reliability values for each item can be seen in the following Figure.

Figure 3. 5 The Reliability of Each Item Questionaire

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item1	34,767	12,116	,391	,775
Item2	35,333	12,989	,315	,781
Item3	35,233	12,254	,497	,757
Item4	35,267	12,961	,491	,760
Item5	34,933	12,754	,405	,769
Item6	35,233	12,668	,452	,763
Item7	34,933	12,133	,497	,757
Item8	34,933	11,651	,666	,735
Item9	35,100	13,472	,378	,772
Item10	34,967	12,585	,468	,761

3.9 Data Treatment

There are three basic assumptions that should be fulfilled in using *Independent Group T-test, Correlation Product Moment* and *Rrepeated Measured Sample T-test* to examine the hypotheses. The data were an interval and taken from purposive sample in population. The data must distributed normally. Thus, it was essential to find out the normality and the homogeneity of the test before having further analysis of the result.

3.9.1 Normality Test

The value of α is the opportunity to make a type I error. A type I error is the error of rejecting Ha, even though Ha is true. Determining the level of significance varies according to the wishes of the researcher. Test of Normality used the Shapiro-Wilk test. It is noted that the Shapiro-Wilk normality test was chosen because the sample size (N) for both classes was less than 50 respondents.

Commonly, the sosial research used α values are 0.05 (0,5%). The α value is a limitation in determining hypothesis testing decisions.

- If Sig > Research Alpha, then Accept H_a (Normal Distribution)
- If Sig < Research Alpha, then Reject H_a (Not Normal Distribution)

3.9.2 Homogeneity Test

Homogeneity of variance tests diversity or variance both groups determined the two t-test methods Free samples to be used (α is significance), namely:

- Assuming equal variances, the p value > α → H_0 is accepted
- Assuming unequal variances, p value < α → H_0 is rejected

The Statistical Package for the Social Sciences (SPSS) software makes it easy to test homogeneity of variance, namely the Levene test on the t-test of two independent samples. The hypothesis for Levene's test is:

- H_0: $\sigma_1^2 - \sigma_2^2 = 0$ (population variance of groups 1 and 2 the same)
- H_1: $\sigma_1^2 - \sigma_2^2 \neq 0$ (population variance of groups 1 and 2 not the same)

Information:

σ_1^2 is population variance of groups 1

σ_2^2 is population variance of groups 2

3.10. Data Analysis

The research data obtained were analyzed using descriptive statistics of average scores, deviation standard, and minimum and maximum values in each class. Meanwhile, statistical inference was more directed towards making

conclusions, correlations, and conjectures based on existing data analysis. Hypothesis rerequisite tests included the normality test in the form of one-sample Kolmogorov-Smirnov test and homogeneity test using Levene's Test of Equality of Error Variance. The hypothesis testing was using Ancova technique.

3.10.1 Descriptive Statistical Data

Descriptive statistical analysis has the aim of describing or describing data based on the results obtained from respondents' answers to each variable measuring indicator. Such as, data centres on single data and group data (mean, median and mode), measures of location of single and grouped data, and measures of data spread in single data and group data. Descriptive statistical data included group frequency distribution data on the results of the experimental class pretest, experimental class posttest, control class pretest, control class posttest, and perceptions of the CIRSA treatment in experimental class students. The frequency distribution table with the following steps:

- Determine the data range ($j = x\ max - x\ min$)
- Determine the number of interval classes ($k = 1 + 3.3\ log\ n$)
- Determine the length of the interval class ($p = j / k$)
- Determining interval class boundaries (*lower and upper limits*)
- Determining the real lower limit and real lower limit (*lower limit - 0.5*)
- Determines the frequency of each interval class and the midpoint of the interval (*Midpoint = 1/2 (lower limit + upper limit)*)

Finally, the calculation of descriptive statistical analysis was processed by IBM SPSS 26. The frequency distribution table will be copy from output of SPSS.

3.10.2 N-Gain Score

Normalized gain or N-gain score aims to determine the effectiveness of using a particular method or treatment in quasi-experimental research. The N-gain score test is carried out by calculating the difference between the pretest value and the posttest value. N-gain score test can be used when there is a significant difference between the average posttest score of the experimental group and the posttest score of the control group through the independent sample t test. So, By calculating the difference between the pretest and posttest scores or the gain score, we will be able to know whether the use or application of a particular method can be said to be effective or not. Meanwhile, the normalised gain or N-gain score by referring to the formula below:

$$N - Gain = \frac{Posttest\ Score - Pretest\ Score}{Ideal\ Score - Pretest\ Score}$$

For information, Ideal Score is the maximum (highest) value that can be obtained. The categorisation of the N-gain score can be determined based on the N-gain value or from the N-gain value in the form of percent (%). The division of the N-gain score category can be seen in the following table.

Tabel 3. 9 N-Gain Score Categorization

N-Gain Score	Categories of Effectiveness
g > 0,7 (70%)	High
0.3 (30%) ≤ g ≤ 0.7 (70%)	Moderate
g < 0.3 (30%)	Low

Source: Melzer, 2008

3.10.3 Independent Sample T-test

To test the hypothesis in this current study, the researcher will use t-test, which is used to discover whether there are statistically significant differences between the means of two groups, using parametric data drawn with a normal distribution. It is used to compare two groups randomly assigned, e.g. on a pretest and a post-test in an experiment. In this research t-test is needed to measure:

- The difference between the mean scores of the experimental and control groups on the post– test (the t-test for independent samples).
- The difference between the mean level of the experimental group on the pre-post- test (the t-test for related or 'paired' samples).

The data is administered twice that can be explained as follows:

- Pre-Test: which done before the samples got the treatment (using CIRC and CIRSA model). The purpose of Pre- observation is to measure the students' writing achievement without using CIRC and CIRSA model.
- Post-Test: which done after the samples of experimental class got the treatment. Students of the experimental group received instruction through the proposed method (using CIRSA model), whereas students of the controlled group received instruction through the CIRC Model. The

purpose of post-observation is to measure the students' writing achievement using CIRC and CIRSA model.

The first, for comparison of two independent group means, researcher can use a t-statistic to test the hypothesis of equal population means only if we know the population variances. However, if the population variance is not equal, the manual statistic of the test as follows:

$$t = \frac{\bar{X}a - \bar{X}b}{S^2p\sqrt{\left(\frac{S^2a}{na}\right) + \left(\frac{S^2b}{nb}\right)}}$$

Where:

$$S^2p = \frac{(na-1)S^2a - (nb-1)S^2b}{na + nb - 2}$$

Information:

$\bar{X}_a$ = sample means of experimental class

$\bar{X}_b$, = sample means of control class

S^2p = deviation standart of both class

S^2a = deviation standart of experimental class

S^2b = deviation standart of control class

na = the sizes of experimental class

nb = the sizes of control class

It is statistically very rare for the difference in two sample means to lie on the margins of the distribution. Therefore, if the difference does lie on the

margins, it is statistically significant to conclude that the samples were extracted from two different populations, even if they were actually extracted from the same population. Finally, to accept or reject the null hypothesis is done by comparing calculated t-value (t_o) and t value from the table (tt). if $t_o < t_t$, null hypothesis is accepted. Finally, the calculation is processed by IBM SPSS 26.0 version.

3.10.4 Paired Samples T-Test

The paired sample t test aims to determine whether there is a difference in the average of two equal samples that are paired or related. Furthermore, to determine whether or not there is an effect of the two learning models (CIRC and CIRSA), the researcher conducted two tests (pretest and posttest) with the aim of knowing students' writing achievement in the five aspects of writing, namely content, organisation, vocabulary, language use, and mechanics. The statistical formula used is below (the calculation will process by IBM SPSS 26.0 version):

$$t - value = \frac{XD}{\sqrt{\left(\frac{\Sigma d^2}{N(N-1)}\right)}}$$

Where:

XD = the average of the subtraction of the first and the second data

d = D - XD

X = amout of data

3.10.5 Product Moment Correlation

This correlation analysis is a study of the discussion of the degree of closeness of the relationship between variables expressed by the correlation coefficient value. The relationship between these variables be positive and negative involving the student perception variable and the posttest results of students' writing achievement after the implementation of the CIRSA Model. In the study, Pearson's bivariate correlation analysis was used to test the relationship between two variables using periodic ratio or interval data. Calculating the correlation itself can be done using manual Product Moment Karl Pearson the following formula:

$$r_{xy} = \frac{N\Sigma xy_{-(\sum x)}(\sum y)}{\sqrt{(N\Sigma x^2 - (\sum x)^2(N\Sigma y^2 - (\Sigma y)^2)}}$$

Where:

rxy = Correlation coefficient between the X and Y values

$\sum xy$ = The number of multiplications between the X and Y values

$\sum x^2$ = Sum of the squares of the X values

$\sum y^2$ = Sum of the squares of the Y values

$(\sum x)^2$ = The squares of sum the X values

$(\sum y)^2$ = The squares of sum the Y values

Next, the calculation of correlation value was useful for measuring the strength of the relationship between two variables. The magnitude of the correlation ranges between -1 0 and 1. The coefficient magnitude -1 and 1 was a perfect relationship, there were correlation between students' perception and

studets' writing achievement at experimental group. Conversely, if the value of r or pearson correlations is close to 0, it means that the relationship between the two variables becomes weaker. Actually, there is no precise rule about whether a certain correlation number indicates a high or weak correlation level. However, we can use the following as a simple guideline that if the correlation number is above 0.5, it shows a fairly strong correlation while if it is below 0.5, it shows a weak correlation. In addition to the magnitude of the correlation, the sign of the correlation also affects the interpretation of the results in this analysis. Where, a negative sign (-) in the SPSS output table indicates the opposite direction, while a positive sign (+) indicates the same direction or unidirectional correlation. Finally, the calculation will process by IBM SPSS 26.0 version.

3.11 Hypotheses Testing

Hypothesis testing is a statistical method used to make inferences about a population based on a sample of data. It involves the formulation of two competing hypotheses – the null hypothesis (H0) and the alternative hypothesis (H1). The null hypothesis typically represents a statement of no effect, no difference, or no change in the population, while the alternative hypothesis proposes a specific effect, difference, or change. The statistical formula for testing the hypotheses of this research is:

1. The Hypotheses of The Independent Sample T-Test

The hypotheses of the independent sample t-test were the null hypothesis (H_0) and the alternative hypothesis (H_1), which can be stated in two different but equivalent ways:

- Null Hypothesis (H_0): There is no significant difference between the means students' writing achievement of the CIRSA learning model and the means students' writing achievement of the CIRC learning model. Stated mathematically as $\mu 1 = \mu 2$, where $\mu 1$ is the mean of the first group, and $\mu 2$ is the mean of the second group.
- Alternative Hypothesis (H_1): There is a significant difference between the means students' writing achievement of the CIRSA learning model and the means students' writing achievement of the CIRC learning model. This can be a statement that the mean of one group is greater or less than the other. Stated mathematically as $\mu 1 \neq \mu 2$ (for a two-sided test), $\mu 1 > \mu 2$ (for a one-sided positive test), or $\mu 1 < \mu 2$ (for a one-sided negative test).

2. The Hypotheses of Paired Samples T-Test

Hypothesis testing in this paired samples t-test aims to determine significant differences in improvement in the five aspects of writing for each class, both experimental and control classes. Thus, this hypothesis testing was carried out 10 times. as for, the hypothesis. This hypothesis testing are the null hypothesis (H_0) and the alternative hypothesis (H_1), which can be stated in two different but equivalent ways.

- Null Hypothesis (H_0): There is no average difference between the Pre-Test and Post-Test writing aspects, which means that there is no effect of using the learning model in improving students' writing achievement.
- Alternative Hypothesis (H_1): There is an average difference between the writing aspects of the Pre-Test and Post-Test, which means that there is no effect of using the learning model in improving students' writing achievement.

3. The Hypotheses of The Product Moment Correlation

Hypothesis testing of correlation testing serves to determine whether the regression coefficient is significant or not. This hypothesis testing are the null hypothesis (H_0) and the alternative hypothesis (H_1), which can be stated in two different but equivalent ways. The hypotheses in this correlation analysis are:

- Null Hypothesis (H_0): There is no correlation between student perception (X) on student writing achievement (Y).
- Alternative Hypothesis (H_1): There is a correlation between students' perception (X) on students' writing achievement (Y).

In short, this chapter covers the methodology of research which is concerned with research design, setting, subject of research, data collecting technique, research procedures, research instruments, reliability and validity of instruments, data treatment, data analysis, and hyphoteses testing. The methodology chapter outlines the systematic approaches employed in the research, specifically focusing

on hypothesis testing. Through the independent sample t-test and simple linear regression, hypotheses are formulated and tested, providing a structured framework to draw meaningful inferences about the populations studied.

V. CONCLUSIONS AND SUGGESTIONS

This chapter provides a comprehensive summary of the study's key findings, implications, and suggestions for future research. The insights gained contribute to the ongoing discourse on effective teaching methods and underscore the importance of evidence-based decision-making in education. By delving into the outcomes and their implications, this study aim to draw meaningful connections between the observed results and the theoretical framework that underpins the study.

5.1 Conclusions

In synthesizing the culmination of data analysis, hypothesis testing, and discussions comparing findings with existing theories and previous studies, this conclusion serves as a comprehensive reflection on the research's key insights. As for the conclusions that can be drawn from the provided research questions, they are as follows:

1. There is a significant difference in students' writing scores between those who were taught with CIRSA and CIRC technique. The CIRSA technique which integrating five steps of scientific approach is more effective in enhancing students' activeness in group discussion to make same concept in finishing their tasks. It not only engages students but also facilitate them to communicate and share their ideas easily. Thus, students become independent

to solve their problem during learning process. It makes a better learning outcome.

2. This analysis indicates a significant difference of writing aspects scores between the pretest and posttest in the both classes. The sequences of aspect improvement in CIRSA class were content, mechanics, vocabulary, language use, and organization. The content relates to the substantial enhancement in understanding and exploring the idea based on the topic. In CIRSA class, students can select and arrange the appropriate ideas and sentences based on the topic because they have not only different roles but also changes to share their concept and give corrective each other. Thus, they can arrange the ideas based on the topic easily. Moreover, the sequences in CIRC class were language use, content, mechanics, vocabulary and organization. It relates to use proper grammatical in writing a text. Students can elaborate their prior knowledge of grammar in their text through CIRC technique. In brief. This finding suggests that both CIRSA and CIRC technique impacted positively on students' writing achievement.
3. There is a positive correlation between students' perception and the improvement of students' writing achievement after CIRSA treatment. The CIRSA technique creates students' enthusiasm, enjoying and comfortable in learning process. It facilitates them to active and competitive because they have certain duty in discussion process. Then, they can solve the problem and finish the tasks easily. Therefore, it implies the implementation of CIRSA

technique make students have positive perception and improve their writing achievement.

5.2 Suggestions

These suggestions aim to guide teachers, educational institutions, and future researchers in optimizing instructional practices, promoting positive student outcomes, and contributing to the ongoing discourse on effective teaching methods.

1. **Suggestions for Teachers**

   The teacher can consider adopting a blended approach by integrating elements from both the CIRC models and Scientific Approach (called; CIRSA), for optimal learning outcomes. Scientific approach is considered collaborative learning, so the students are also required to be active and contribute to the learning process. In applying the technique, the teachers should act as a facilitator and put the students at the center of the whole process in the class, so students will enjoy and be active in the learning process. The students also can increase their abilities to communicate and interact with their friends in getting as much as information possible in group work. In addition, the teachers are suggested to provide appropriate media to help students find out new information easily.

2. **Suggestions for Educational Institutions**

   The educational institutions may provide opportunities for teachers to engage in professional development activities that explore and integrate diverse

instructional CIRC and CIRSA model. The educational institutions not only encourage initiatives that foster positive student perceptions, attitudes, and engagement, but also recognize the importance of student feedback and opinions in shaping effective instructional approaches.

3. Suggestions for Next Researchers

The next researchers should investigate hybrid instructional models that integrate strengths from both CIRSA and CIRC models for a more comprehensive learning experience and conduct longitudinal studies to explore the sustained impact of positive perceptions on writing achievement over an extended period. Then, investigate the interconnectedness of content, organization, grammar, vocabulary, and mechanics in effective written communication.

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