



**THE COMPARATIVE STUDY BETWEEN  
STUDENT TEAMS ACHIEVEMENT DIVISION (STAD) AND  
COOPERATIVE INTEGRATED READING AND COMPOSITION  
(CIRC) METHODS OF STUDENTS' READING ABILITY  
IN NARRATIVE TEXT AT GRADE VIII OF SMPN 4  
PADANGSIDIMPUAN**

**A THESIS**

*Submitted to the State Institute for Islamic Studies Padangsidimpuan  
as a Partial Fulfillment of the Requirement for the Degree of Graduate of  
Islamic Education (S.Pd.I) in English*

**By:**

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STATE INSTITUTE FOR ISLAMIC STUDIES  
PADANGSIDIMPUAN**

**2015**



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**2015**

## LETTER OF AGREEMENT

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Padangsidimpuan, 04 December 2015

To :  
Dean Tarbiyah and Techer Training  
Faculty

Item : 7 (Seven) Exemplars

in -  
Padangsidimpuan

Assalamu'alaikumWr. Wb.

After reading, studying and giving advice for necessary revision on thesis belongs to SEPRINA MATUMONA SINAGA, entitle **"The Comparative Study Between Student Teams Achievement Division (STAD) and Cooperative Integrated Reading and Composition (CIRC) Methods on Students' Reading Ability in Narrative Text at Grade VIII of SMPN 4 Padangsidimpuan"**, we approved that the thesis has been acceptable to complete the requirement to fulfill for the degree of Graduate of Islamic Education (S.Pd.I) in English.

Therefore, we hope that the thesis will soon be examined in front of the Thesis Examiner Team of E. Dept of Tarbiyah and Teacher Training Faculty IAIN Padangsidimpuan. Thank you.

Wassalamu'alaikumWr. Wb.

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**AGREEMENT OF PUBLICATION OF FINAL TASK**  
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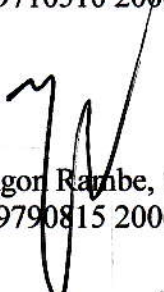
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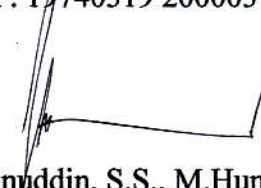
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Thesis : **THE COMPARATIVE STUDY BETWEEN STUDENT TEAMS ACHIEVEMENT DIVISON (STAD) AND COOPERATIVE INTEGRATED READING AND COMPOSITION (CIRC) METHODS OF STUDENTS' READING ABILITY IN NARRATIVE TEXT AT GRADE VIII OF SMPN 4 PADANGSIDIMPUAN**

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### **ABSTRACT**

This research concerned about the comparative study of students' reading ability by using STAD method and CIRC method at Grade VIII of SMP Negeri 4 Padangsidimpuan. The problems of this research were most of students had lack of vocabulary mastery, lack of motivation, students feel reading is boring, and students were unable to integrate text and context.

The purpose of this research was to find out the difference between STAD method and CIRC method of students' reading ability in narrative text at grade VIII of SMP Negeri 4 Padangsidimpuan.

This research employed experimental research. The population of this research was the eighth grade of SMP Negeri 4 Padangsidimpuan. The total of population were twenty classes. Then, the sample of the research was 2 classes, experiment class (VIII-5) and control class VIII-6). It was taken randomly after conducting normality and homogeneity test. To collect the data, researcher used test for measuring students' ability in reading narrative text. To analysis the data, the researcher used t-test.

Based on the result of the research, researcher showed the description of the data was found that the result of experimental class and control class in pre-test ( $72.55 > 70.3$ ). In post test the result of experiment class and control class was higher than control class ( $86.5 > 65$ ). So, it was concluded that STAD Method was better than CIRC Method. The score of  $t_{count}$  was bigger than  $t_{table}$  ( $34.67 > 2.000$ ). It means that the hypothesis alternative ( $H_a$ ) was accepted, and it was concluded that there was the difference between students' reading ability by using STAD and CIRC Method at Grade VIII of SMP Negeri 4 Padangsidimpuan.

## ACKNOWLEDGEMENT

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In writing this thesis, the researcher is assisted by some people and institutions. Therefore, in this opportunity the researcher would like to express her gratitude to the following people:

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This thesis is still so far from being perfect based on the weakness of the research. Therefore, the researcher aspects the constructive criticisms and suggestions from the readers in order to improve this thesis.

Padangsidimpuan, 30 December 2015



**Seprina Matumona Sinaga**  
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## CHAPTER I

### INTRODUCTION

#### A. The Background of the Problem

Reading is one of four basic language skills in language learning for listening, speaking, and writing. Reading is one of language skills to be owned by every students in order to be able to comprehend the information from the text material. Now, most of English material in junior high school is based on the text or by using genre. Such as narrative, descriptive, procedure, recount, and report. One of them presents some problems that are learn by students namely narrative text.

First, we can get information through reading. To know some informationsstudents reading get the information from reading the book, textbook, newspaper, and magazine. Reading is a fluent process of reader combining information from a text and their own background knowledge to build meaning. To know more information and add our knowledge we must read more.

Second, reading can develop our memory improvement. When we read a book or some informations, students have to remember an assortment of characters, background, ambitions, history and nuances from the book or from the story. Reading is an indulgence that enhances our knowledge by making us use our brain and causing to think more and therefore enhancing our intelligence. Reading can open doors to new world, new ideas and new the imagination and our brain in turn will develop our ability in thinking and



solving our problem in the real world. Reading help us to improve both memory and concentration.

Finally, reading can develop our knowledge. Learning to read well and learning to read better is a key to gaining our knowledge. We can learn, add our knowledge and understand about some information when read.

Some important of reading above show that people must pay attention to their reading and don't underestimate it. The beginning of this research is finding research problems. The problems are discussed by usingconstructivism theory.

Constructivism is a theory describing how learning happens, regardless of whether learners are using their experiences to understand the lecture or following the instructions for building a model airplane. The theory of constructivism suggest that learners construct knowledge out of their experiences. However, constructivism is often associated with pedagogic approaches that promote active learning. According to constructivist view, learning is an individual acitivity where each student to form his own knowledge. However, the integration and collaboration with a group of friends is also very important in the learning process. Students can learn with their friend and exchange ideas with one another.<sup>1</sup>In addition, constructivism theory focuses on the factors that affect of students involvement. So, based on explanation of the constructivism theory can compare STAD and CIRC Method in reading ability.

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<sup>1</sup>Paul Suparno, *Teori Perkembangan Kognitif Jean Piaget* ( Yogyakarta: Kanisius, 2011), p. 145.

Based on the illustration above, it is undeniably that reading is important for everybody. However, reading still a problem in school, especially at SMPNegeri4 Padangsidimpuan. It can be seen based on illustration below.

First, based on interview with the teacher. There are many students have low reading ability. Based on the constitution of National Education System (Sisdiknas) No. 20 in 2003, passing grade of English in junior high school is 75 for all subjects and skills. However, the data found in SMP N 4 Padangsidimpuan asserts the average of students reading ability of grade VIII is about 65-70.<sup>2</sup> Therefore studentsreading ability does not fulfill the expectation.

Second, students feel reading is boring. Sri Bintang said that reading is boring subject, “reading is boring subject because I don’t understand about the meaning, and reading is the monotonous because we just read a book and doesn’t have others variation”. So, she doesn’t interset to reading and if she read a text about English she doesn’t know about the meaning.

Finally, from all the factors above, one of the essential factors is the teaching method that is used by the teacher. Teaching method is very important in teaching and learning process because it can motivate the students to study so that they are able to master all the language skills in English. It can improve the students attention while the students are in

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<sup>2</sup>Buku Kumpulan Nilai SMP Negeri 4 Padangsidimpuan, *Private Document* (SMP Negeri 4 Padangsidimpuan: December 10<sup>th</sup>, 2014 at 10.30 a.m).

learning process and also it easy for the teacher to deliver the material in front of the classroom.

For the objective stated above, it can be seen that the English teacher should develop their ability, especially in reading ability. The teacher can use some techniques like; Survey Question Read Recite Review (SQ3R), Cooperative Integrated Reading and Composition (CIRC), Grammar Translation Method (GTM) and the others. From the methods mentioned the researcher interest to choose Cooperative Integrated Reading and Composition (CIRC), In this case the researcher tries to compare two methods in teaching narrative text, they are Student Teams Achievement Division (STAD) and Cooperative Integrated Reading and Composition (CIRC) methods.

Student Teams Achievement Division (STAD) method is a kind of cooperative learning that use in teams form while teaching and learning process. It is the simple method and students study the material with their team. The students become easy to understand the material with their friends. They can share one each other while learning process. STAD method is one of cooperative learning method that apply in grouping which use heterogenous grouping from different characteristic, background and IQ of students.

CIRC method is design to accomodate the variates of students' competence, trouhgh heterogeneous grouping or homogeneous grouping. CIRC is one of cooperative learning method which is design in group to help students in reading and writing skill of some materials. Cooperative

Integrated Reading and Composition (CIRC) method, one of the learning methods based on cooperation, is design to develop reading, writing and other language skills.

The researcher has some reasons for choosing STAD and CIRC method. First, the learning process will be relax and easy. Because the students who do not understand about the material, they can ask to their friends directly and share one each other to help their friends. Second, the students in their group has a responsibility to the succesful in reach the learning approach. Because every students in the group doing learning process with the same responsibility to understand the material and share the knowledge with each other to make every member of the group understand the material and work together to get high score. The last, develop students ability in reading. When students reading some text, they can combining information from a text and their own background knowledge to build the meaning.

Finally, based on the statement above, the researcher realizes this problem is necessary to be solved, because it will appear various problems in reading narrative text. So, the researcher thinks thatis very interesting to do research about “The Comparative Study Between Student Teams Achievement Division (STAD) and Cooperative Integrated Reading and Composition Methods of Students’ Reading Ability in Narrative Text.



## **B. Identification of the Problem**

Reading is starting step of many things, which build more solid stairs to climb up achieving something big out there. It is one of the four skill that must be mastered by student. But many students are still low in reading test. And then, the students do not have good method in reading or they do not know the method. To solve the problem there are many methods in teaching reading ability such as Student Teams Achievement Division (STAD), Cooperative Integrated Reading and Composition (CIRC), and Grammar Translation Method (GTM). In this research, the researcher employ the STAD and CIRC method to teaching reading ability.

## **C. Limitation of the Problem**

Based on the previous explanation, there are many factors that influence reading ability of narrative text, it is impossible to the writer to research all factors because the writer has some limitations. So in this research the writer only focus on one factor from several factors which have been mentioned, it is teaching method by using Student Teams Achievement Division (STAD) and Cooperative Integrated Reading and Composition (CIRC) methods. The reason of the researcher to limit the problem based on STAD and CIRC methods is that the researcher thinks that those methods are suitable in teaching reading ability in narrative text in order to take the result was better.

Furthermore, the researcher will discuss about reading ability of narrative text, such as the social function of the text, identifying specific

information from the text, identifying the meaning of difficult word. Then, the writer will explain how far the comparison between STAD and CIRC methods of the eight grade students of SMP Negeri 4 Padangsidempuan of reading ability in narrative text.

#### **D. Formulation of the Problem**

To make the problem clear, the writer formulated the problem based on identification above as follow: “Was there the difference of students’ reading ability in narrative text by using Student Teams Achievement Division (STAD) and Cooperative Integrated Reading and Composition (CIRC) methods to the eight grade students of SMP Negeri 4 Padangsidempuan?”

#### **E. Purpose of the Research**

The purpose of the research are as follows:

To examine whether there was difference between Student Teams Achievement Division (STAD) and Cooperative Integrated Reading and Composition (CIRC) methods of students reading ability in narrative text to the eight grade students of SMP Negeri 4 Padangsidempuan.

#### **F. Significances of the Research**

The significances of the research are expected to be useful for:

1. English teacher as informant to increase knowledge especially about the comparative study between student teams achievement division (STAD) and cooperative integrated reading and composition (CIRC) methods of students’ reading ability in narrative text.

2. The headmaster, to help the English teacher to improve learner's ability in English especially in reading ability.
3. Educational, to improve the quality of education especially in English by using appropriate method in teaching English.

#### **G. Defenition of Operation Variables**

In this research, there are many terms that should be known in order to avoid misunderstanding of terms, the terms as follow:

1. Students' reading ability by using Student Teams Achievement Division (STAD). STAD is Cooperative learning which helps promote collaboration and self-regulating learning skills. It means that STAD method helps students to involve their skill in collaboration or regularating learning in classroom.<sup>3</sup> Reading ability is Activity to get information or idea from a text which the writer wants to inform to the reader.
2. Students' reading ability by using Cooperative Integrated Reading and Composition (CIRC). CIRC is design to accomodate the variates of students' competence, through heterogeneous grouping or homogeneous grouping.<sup>4</sup> Reading ability is a process in which the students try to understand the meaning of their reading text.

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<sup>3</sup>Ray in Gul Nazir Khan article, *The Effect of Student Teams Achievement Division, (STAD) on Academic Achievement of Students* (<http://www.social-science/education>, accessed on 17 february 2015), p. 10.

<sup>4</sup>Stavens in Miftahul Huda, *The Cooperative Learning* (Bandung: Universitas Terbuka, 2006), p. 28.

## CHAPTER II

### THEORITICAL DESCRIPTION

#### A. Theoretical Description

In arranging a research, theories are very important to explain some concepts or terms applied in research concerned. The terms are as follows:

##### 1. Reading Ability

###### a. The Definition of Reading Ability

Reading is an activity to get the information or idea from a text which the writer wants to inform to the reader by using deep comprehension. According to M.F Patel and Praveen M. Jain “Reading is an active process which consists of recognition and comprehension skill”.<sup>1</sup> It means the reader should have recognition and comprehension skill to read the text.

Furthermore, Marie Clay’s on Peter S. Westwood Book states:

“I define reading as a message-getting, problem-solving activity which increases in power and flexibility the more it is practised. My definition states that within the directional constraints of the printers’ code, language and visual perception responses are purposefully directed by the reader in some integrated way to the problem of extracting meaning from cuse in a text, in squence, so that the reader brings a maximum of understanding to the authors’ message”.<sup>2</sup>

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<sup>1</sup>M.F Patel and Praveen Jain, *English Teaching* (Jaipur: Sunrise Publisher and Distributors, 2008), p. 113.

<sup>2</sup>Marie Clays’ in Peter S. Westwood., *Learning and Learning Difficulties* (Australia: Acer Press, 2004),p. 85.



Reading is an interaction between the reader and the author where the prior knowledge of content, structure and vocabulary. It enables the reader to make meaning from the text.<sup>3</sup> Reading is a set of skills that involves making sense and deriving meaning from the printed word. In order to read, we must be able to decode (sound out) the printed words and also comprehend what we read.<sup>4</sup> In other word, reading is a complex process in which the recognition and comprehension of written symbols are impacted by the perceptual skills, the word an anlysis skills, the experience, language backgruond, the mind set and the reasoning ability of the reader.<sup>5</sup> Reading is an interaction between reader and writer. It means that transferring symbol on the text from writer brain to reader brain.

From the quotation above, can be concluded that reading is an understanding activity to be able to comprehend text with some key elements of use visual perception, language competence, concepts about print, knowledege the alphabetic code, contextual cuse, metacognitive strategies to search the meaning. So, the students can understand the meaning of a text.

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<sup>3</sup>Harvey Daniels and Marilyan Bizar, *Teaching the Best Practice* (Portland: Standhouse Publisher, 2015),p. 38.

<sup>4</sup>Caroline T. Linse, *series editor: David Nunan, Practical English Language Teaching:Young Learners* (New York: Mc Graw Hill Company, inc, 2005),p. 69.

<sup>5</sup>Albert J.Harris, *How to Increase Reading Ability* (New York: David Mckay Company, 1969), p. 3.

According to Tarigan, reading is a process of reader in bringing some meanings and getting meanings from printed and written material.<sup>6</sup> Additionally, reading cognitive process in combining physic and mental to get the information from a text.<sup>7</sup> Based on definition both of them can be concluded that reading is certainly to get information from printed material, not only using mental or mind to think what text talks about, but in this case the readers also need physic to read; for example the readers use their eyes when they read.

From all explanation above researcher concluded that reading is an activity the reader to get information. From text or reading is a process communication from the writer to the reader for understanding what means of writer.

#### **a. The Purpose of Reading Ability**

The main goals of reading are to get and find information include content and meaning of the text based on the purpose. Tarigan stated are some goals of reading such as:

- 1) Reading is for identifying important information.
- 2) Reading is for main ideas.
- 3) Reading is for finding the specific information.
- 4) Reading is for underlining the important information.
- 5) Reading is to classify the difficult word.
- 6) Reading is to evaluate.

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<sup>6</sup>Henry Guntur Tarigan, *Membaca sebagai suatu Keterampilan Berbahasa* (Bandung: Angkasa, 2005),p. 8.

<sup>7</sup>DP. Tampubolon, *Kemampuan Membaca, Teknik Membaca Efektif dan Efisien* (Bandung: Angkasa, 1987),p. 228.

7) Reading is to compare or contrast.<sup>8</sup>

In this reserach, the purpose of reading is identifying important information, finding specific information, and to evaluate reading. It have talked above that comprehension is ability to construct the language to take the information from the text.

According to Jeremy Harmer, there are several purposes of reading. He said that the purpose of reading is different in the way. It saw what kind of the text will be read. Next, there are the purposes or the reason for reading ability.

- 1) Instrumental: a large amount of the reading takes place because it will help us to achieve some clear aim. Thus, for example, we read the road sign so that we know where to go. We read the instructions on the ticket because we need to know how to operate it.
- 2) Pleasurable: the people read magazine or spend hours buried in the Sunday paper, other go to poetry readings, read illustrated cartoon or photo-story.
- 3) For General Understanding: good reader is able to take in a stream of discourse and understand the gist of it without worrying too much about the details. Reading for such 'general' comprehension means not stopping for every word, not analyzing everything that the writer includes the text. It can use skimming.
- 4) For specific information: in contrast to reading for gist, we frequently go to written text because we want specific detail. Reading in this skill is frequently referred to as scanning.
- 5) For detail information: sometimes we read in order to understand everything we are reading in detail. This is usually the case with written instruction or direction, or with the description of scientific procedures, it happens

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<sup>8</sup>Henry Guntur Tarigan, *Op. Cit.*, p. 9.

when someone gives us the address and telephone number and we write down all the detail.

- 6) Interpreting text: reader is able to see beyond the literal meaning of word on the passage, using a variety of clues to understand what writer implying. Successful interpreting in this kind depends to a large extent on share schemata.<sup>9</sup>

Finally, the purpose or reason for reading should be influenced how and what for we read a piece of material. Different situations require different goal. For example, we may not need to recall every fact when leisurely read an article in the newspaper, but we need a high level of comprehension when read a contract that we plan to sign. Comprehension can range from the careful, close attention to a very brief, quick reading for only main idea.

### **b. Kinds of Reading**

If seen from listen or not reader's voice when they reading, so reading process can divided in two kinds.

#### 1) Silent Reading

According to oxford dictionary silent is condition of not speaking and without a sound track.<sup>10</sup> According to David Nunan, silent reading generally focus in the classroom should be on getting meaning from print when comparison is the goal of reading.<sup>11</sup>

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<sup>9</sup>Jeremy Harmer, *The Practice of English Language Teaching (Third Edition Completely Revises and Update)*, (England: Longman, 2003), p. 200-202.

<sup>10</sup>Horn By, *Oxford advanced learners dictionary* (New York: Oxford University Press: 1995), p. 887.

<sup>11</sup>David Nunan, *Practical English Language Teaching* (New York: Mc Grow Hill, 2003). P. 64.



Then Tarigan said “reading is a process who done and be used by reader to get message from written. Silent reading is reading a text without voice. Silent reading is to training students to really pay attention to can understand text. Reading is primarily a silent activity.<sup>12</sup> Silent reading is use only visual memory, by silent reading, the student to be train really can understand material of text. So silent reading is a process who done and be used by reader to get message from written by condition not speaking and without soundtrack. The researcher conclude silent reading is reading activity without voice.

## 2) Reading aloud

According to Kasihani stated that, loud reading is to train students able to read with good pronunciation or speak. The aim of loud reading is able to tell good words, fares, and sentence of English.<sup>13</sup>Further, Ag, Bambang Setiyadi stated that “Oral reading is relatively uncommon in modern language classes. This type of reading is still important in improving learners pronunciation. Working in groups will make language learners feel confident to pronounce word in foreign accent and practice is really recommended in this method.

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<sup>12</sup>Henry Guntur Tarigan, *Loc Cit.*, p. 22.

<sup>13</sup>Kasihani K.E. Suyanto, *Op.Cit.*, p. 64.

This is really helpful for language learners who are reluctant and say to imitate the teacher expression individually.<sup>14</sup>

Generally loud reading is oral matter, therefore, especially in teaching foreign language, loud reading activity is more depend to pronunciation instead of reading comprehension. For this case reading text must be choice which the content and language is easier to understand.

### **c. The General of Narrative Text**

#### **1. The Definition of Narrative Text**

Martin Montgomery says that Narratives are stories involving a sequence of related events.<sup>15</sup> It means that the stories in narrative text is sequence of related times/events. Narrative can be imaginary or factual (fairy tales, mysteries, fables, romances and adventure stories, myths and legends). Anderson and Kathy describe many different types of narrative; namely humor, romance, crime, real life fiction, historical fiction, mystery, fantasy, science fiction, diary novel, and adventure.<sup>16</sup>

Narrative text is a written text of story that has social function to amuse, entertain people with vicarious context of past events.

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<sup>14</sup>Ag. Bambang Setiyadi, *Teaching English as A Foreign Language* (Yogyakarta: Graha Ilmu, 2006), p. 67.

<sup>15</sup>Martin Montgomery, *Ways of Reading* (USA: Routledge, 2007), p. 251.

<sup>16</sup>Mark Anderson and Kathy Anderson, *Text Types in English 2* (South Yarra: Mc Millan, 2003), p. 18.

According to Sanggam and Kisno, “Narration is any written English text in which the writer wants to amuse, entertain people, and to deal with actual or various experiences in different ways.”<sup>17</sup> It means narrative is a text that has purpose to entertain the reader. Taufik Nugroho says that the narrative text type tells a story. its purpose is to present a view of the world that entertains or informs the listener or reader.<sup>18</sup> It means the story in narrative has a purpose to entertain and inform the reader.

Based on the explanation above, researcher concludes that narrative text is the text that tells about the past time. It tells about the real action or the unreal action. Next, some stories on the novel, tales, fable, legend and so on used narrative text.

## 2. The Purpose of Narrative Text

In addition, Taufik Nugroho says, “The purpose of narrative is to present a view of the world that entertains or informs the listener or reader.”<sup>19</sup> It means the purpose of narrative text is to entertain or inform the listener or reader. The basic purpose of narrative is to entertain, to gain and hold a reader’s interest. Furthermore, narratives can also be written to teach or inform, to change attitudes/social opinions.

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<sup>17</sup>Sanggam Siahaan and Kisno Shinoba, *Generic Text Structure* (Yogyakarta: Graha Ilmu, 2008), p. 73.

<sup>18</sup>Taufik Nugroho, *Introduction to Genre Based Approach* (Jakarta: BERMUTU, 2010), p. 18.

<sup>19</sup>*Ibid*, p. 20.

### 3. Generic Structure of Narrative Text

Narrative text written with some components of generic structure. There are three generic structures of narrative text, they are: orientation, complication and resolution, but sometimes there is also re-orientation/coda. As Otong Setiawan Djuharie said, “The generic structure of narrative text are: orientation, complication, resolution and coda/re-orientation.

- a) Orientation: beginning or introduction, introduces main characters, setting and time. The opening paragraph introduces characters/participants of the story and sets the scene (it answers the questions who, when, what and where).
- b) Complication: middle, the problem happens among the characters. It is about the problems which involve the main character in the story developed.
- c) Resolution: ending, the problem is dissolved. It is about how the problems in the story are solved (better or worse). Here, the main characters find ways to solve the problems.<sup>20</sup>

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<sup>20</sup>Otong Setiawan Djuhari, *Genre* (Bandung: CV. Yrama Widya, 2007), p. 41.

#### **4. Reading Evaluation**

Evaluation is very important to measure reading. It will find the comprehension from what have been read. For knowing the reading ability, it can use a test. The reading test will be designed in order to measure the students' ability in reading at grade VIII in SMPN 4 Padangsidempuan, because testing is one of tool to measure their ability.

The indicators of reading evaluation are:

- a) Identifying social function
- b) Identifying specific information from the text
  - 1) Orientation
  - 2) Complication
  - 3) Resolution
- c) Identifying the meaning of difficult word

There are some techniques to make a test; one of them is multiple choice questions. Multiple choice is one of testing method for knowing reading comprehension. Because multiple choice is a test for searching just one the right answer. It needs comprehending to choose one of them.

Selecting and setting items are however, subjective processes and the decision about which is the correct answer is a matter of

subjective judgment on the part of the item writer.<sup>21</sup> Students should be careful to decide the best answer. According to writer, Multiple-choice test is the best choosing because it will make students easy for applying their comprehension.

## **1. The General Technique of Student Teams Achievement Division (STAD) and Cooperative Integrated Reading and Compisition (CIRC) Methods**

### **a. Background of STAD and CIRC**

Teaching is an activity to transfer knowledge which is done by a teacher to the students. So, in teaching a teacher should have intelgence in giving material especially in teaching narrative text. Method is a tool or way that teacher's use to transfer knowledge to the students in teaching and learning process with some steps and designs based on the material and condition in the class room it self. So, the function of method is as a tool or way to transfer knowledge.

According to Hamzah B. Uno that teaching method is defined as way that teachers' use, in which doing his function as a tool to reach the purpose of learning.<sup>22</sup> It means that the method of teaching can use by the teacher in order Kizlik as cited by Peter Westwood states:

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<sup>21</sup>Cryil J. Weir, *Communicative Language Testing* (UK: Printice Hall, 1990), p. 43.

<sup>22</sup>Hamzah B.Uno, *Model Pembelajaran* (Jakarta: Bumi Aksara, 2011), p. 2.



“there is no short age of information on what constitutes a particular instructional method. What is far more important is the professional knowledge base that provides criteria for when particular method is appropriated for given content with students of a defined level of development and who have acquired the prerequisite necessary to learn content.”<sup>23</sup>

Therefore, it is necessary for the teachers to have the methods to see the goal in teaching especially in reading ability of narrative text. There are various methods that the teacher can use in reading narrative text such as inquiry, problem solving, discussion, cooperative learning methods and so forth. In reading narrative text, a teacher must be able to use some suitable methods in order the result is better. So, the students can achieve the material easily by using that method in activity of learning process.

There are many kinds of teaching method that can be used in teaching and learning process. Such as, Inquiry Method, Jigsaw Method, TPR Method, CTL Method, Indirect Method, TGT Method, Student Teams Achievement Division (STAD) Method, Cooperative Integrated Reading and Composition (CIRC) Method and so on.

Based on the explanation above, the writer chooses Student Teams Achievement Division (STAD) and Cooperative Integrated Reading and Composition (CIRC) method to solve problem in reading narrative text at grade VIII in SMPN 4 Padangsidimpuan.

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<sup>23</sup>*Ibid*, p. 39.

## a. Defenition STAD and CIRC

### 1. Defenition of STAD Method

Student Teams Achievement Division (STAD) method is a kind of cooperative learning that use in teams form while teaching and learning process. It is the simple method and students study the material with their team. Robert E. Slavin said “STAD is one of cooperative learning methods, and is a good model to begin with for teachers who are new to the cooperative approach.”<sup>24</sup> It means STAD method is a cooperative learning method which suitable with the new teacher to teach the material by using STAD method.

The students become easy to understand the material with their friends. They can share one each other while learning process. For successful STAD method, students divided into some teams and doing the activity with some steps.

STAD method helps student to involve their skill in collaboration or regulating learning in classroom. Every students in the group doing learning process with the same responsibility to understand the material and share the knowledge with each other to make every member of the group understand the material and work together to get high score.

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<sup>24</sup>Robert E.Slavin, *Cooperative Learning Teori, Riset dan Praktik* (Bandung: Nusa Media, 2005), p. 143.

Sri Anitah says, “Student Teams Achievement Division (STAD) is a very simple cooperative learning method. The teacher uses the STAD method, toward in grouping.”<sup>25</sup> It means the STAD method is a simple cooperative learning method which design in grouping.

Chairani state, “In cooperative learning each member of the group has a responsibility to the succesful of each member in their group in reach the learning approach.”<sup>26</sup> It means every students in the group doing learning process with the same responsibility to understand the material and share the knowlege with each other to make every member of the group understand the material and work together to get the high score.

Based on the quotations above, the writer concludes that the STAD method is one of cooperative learning method that apply in grouping which use heterogenous grouping from different charasteristic, background and IQ of students.

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<sup>25</sup>Sri Anitah, *Strategi Pembelajaran Fisika* ( Jakarta: Universitas Terbuka, 2008), p. 10.

<sup>26</sup>Chairani, *Model Pembelajaran Kooperatif Tipe STAD* (<http://www.social-sciences/education>), accessed on 7<sup>th</sup> May 2015),p.10.

## 2. Defenition of CIRC Method

Cooperative Integrated Reading and Composition (CIRC) method is one of cooperative learning method which is design in group to help students in reading of some materials. Erhan Durukan says, “Cooperative Integrated Reading and Composition (CIRC) method, one of the learning methods based on cooperation, is design to develop reading, writing and other language skill.”<sup>27</sup> It means that CIRC method is a cooperative learning method that design to develop reading, writing and other language skills through heterogeneous grouping or homogeneous grouping.

According to Muhammad Nur in Suyitno Amin, “Model CIRC diterapkan dalam pembelajaran bahasa. Dalam kelompok kecil, para siswa diberi suatu teks atau bacaan (cerita atau novel), kemudian siswa latihan membaca atau saling membaca, memahami ide pokok, saling merevisi, dan menulis ikhtisar cerita, atau memberikan tanggapan terhadap isi cerita, atau untuk mempersiapkan tugas tertentu dari guru.”<sup>28</sup> It means CIRC method is apply in teaching language of small group with some activities such as reading a text from novel,

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<sup>27</sup>Erhan Durukan, *Effect of Cooperative Integrated reading and composition (CIRC), technique on reading – writing skills*, <http://www.academicjournals.org/ERR>. accessed on 17 february 2015, p. 45.

<sup>28</sup>Suyitno Amin, *Model Pembelajaran Kooperatif* (Jakarta: Nusa Media, 2005), p. 18.

understand the main idea and write the main idea of the text or give response to the text or prepare for a task from the teacher.

Based on the explanation above, the writer concludes that the CIRC method is a cooperation learning method which design to teach reading and writing through small grouping of students.

## **b. The Main Principle of STAD and CIRC**

### **1. The main principle of STAD**

The basic principles of cooperative learning as follows:

- a) Each member of the group (students) are responsible for everything that is done in a group.
- b) Each member of the group (students) should know that all of the group members have similar goals.
- c) Each member of the group (students) has to split the duties and responsibilities equally among group members.
- d) Each member of the group (students) will be evaluated.
- e) Each member of the group (students) to share leadership skills and need to learn together during the learning process.
- f) Each member of the group (students) will be required to be individually accountable for the material is handled in a cooperative group.

## 2. The main principle of CIRC

There are some principles of CIRC method that to be approach, it can be applied in teaching process. They are:

- a) Teams is make heterogenous grouping that consist of 4-5 students.
- b) Placement test is the average score from their daily test score or based on their report score, so that the teacher know the advantage and disadvantage of students.
- c) Students creative doing a task in a group which create the situation where the success of individual is based or influenced by their group success.
- d) Team study is the learning step that should be done by the group and teacher give a helping to the group.
- e) Team scorer and team recognition is the step to give the score to the result of group and recognition to the success group.
- f) Teaching group give the material as soon as from the teacher before doing a group task.<sup>29</sup>

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<sup>29</sup>*Ibid*,p. 4.



**c. The Purpose of STAD and CIRC****1. The purpose of STAD**

There are some purposes of STAD method, they are:

- a) Give the students a chance to know and study how is the way to learn in teamwork, what should they do, what is the problem that can be arise.
- b) Can make students happy or enjoy that stimulate them active in the group. So, the students enjoy the learning process.
- c) The students are accustomed to do their task with high responsibility. So, that it can be increase their personal value to do their task well.
- d) By this method the students will be a good students in character and attitude to their subject and school.

**2. The purpose of CIRC**

There are some purposes of CIRC method, they are:

- a) CIRC method is very suitable to increase the students ability in problem solving. They can give their opinion freely of the material.
- b) While teaching and learning process the students are more active than the teacher.

- c) This method give the students a chance to know and study how is the way to learn in teamwork, what should they do what is the problem that can be arise.
- d) This method teach the students become communicative and the opinion that they say it is come from their mind.
- e) Increase the achievement of student after learning this method.<sup>30</sup>

#### **d. The Procedure of STAD and CIRC**

##### **1. The Procedure of STAD**

There are some procedures in teaching STAD method, they are:

- a) Convey the purposes and motivations. Convey the purpose of the material that will be reach in that learning and motivate the students to study.
- b) Team divisions. Divide the students into some teams which consist 4-5 members in each team heterogenous.
- c) Teacher presentations. Teacher convey the material and the purpose of the lesson before. In the learning process, teacher helps with media, demonstration, and question.
- d) Team works. Students work in their teams. Teacher give the work paper as a direction for team works. During the teams work, teacher monitoring, guedance and supporting and helping if it is needed.
- e) Quizzes (Evaluations). Teacher evaluates the learning result by giving test or quize about the material that studied and also giving score to result of each presentation from the teams. The students sit individually and no permit to do it with their teams.
- f) Team recognitions. After doing a quize, the teacher looks for the work result of the students and gives the score from 0-100. Then, gives the rewards to the success team.<sup>31</sup>

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<sup>30</sup>Robert E. Slavin, *Op.cit.* p. 57.

<sup>31</sup>Rusman, *Model – Model Pembelajaran Mengembangkan Profesionalisme Guru* (Jakarta: Rajawali Pers, 2011), p. 21.

It means that the steps of STAD method should be inform the purpose and motivates, the teacher presentate the material, team work activity, doing evaluation, and team recognition to get the rewards in the end of learning.

## 2. The Procedure of CIRC

There are some procedures in teaching CIRC method, they are:

- a) Make some groups that consist of 4-5students heterogeneously.
- b) Teacher give the text/clipping based on the material.
- c) Students work together to read one another and find the main ideas and give response to the text/clipping and write on a sheet of paper.
- d) Presentate / read the result of discussion.
- e) Closing.<sup>32</sup>

According to Robert E. Slavin there are many procedures inteaching CIRC Method, they are:

- a) The teacher divided the students into some groups that consist of 4-5 students
- b) The students move to their groups
- c) The teacher give the material for the students
- d) The students work together to read and understand the material
- e) The teacher give the quize for the students
- f) The students answer the quize with their teams
- g) The teacher collect the quize<sup>33</sup>

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<sup>32</sup>Agus Suprijono, *Cooperative Learning Teori dan Aplikasi PAIKEM* (Yogyakarta: Pustaka Pelajar, 2010), p. 131.

## 1. Review of Related Findings

There were the researchers that had relation to research that was done by researcher. Therefore, the researcher made theirs as related finding. There are two researchers was used as related finding. A script of Lindayanti had done research about “The Comparative Study Between SQ3R (Survey, question, read, recite and review) and Discussion method to the grade XI Madrasah Aliyah Ittihadul Muballighin Ujung Grading Students’ Comprehending Narrative Text Ability in 2010-2011 Academic Year”. The result of her research said that the students are better in comprehension narrative text by using SQ3R method based on the mean score 70, discussion method that have the mean score is 68,75. So that, SQ3R better than discussion method.<sup>34</sup>

LenniSriwahyuniDaulay had done research about “The Comparative Study Between Direct Method and GTM in Teaching Present Continuous Tense to the Grade VII at SMP N 3 Padangsidempuan in 2007/ 2008 Academic Year”. Her conclusion in her research, she said that the observe t value -1,82 is lower than the value of t table. It means that the null hypothesis is accepted and the alternative hypothesis is rejected. Then, the result of

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<sup>33</sup>Robert E.Slavin, *Cooperative Learning Teori, Riset dan Praktik* (Bandung: Nusa Media, 2005), p. 59.

<sup>34</sup>Lindayanti, 2011. “The Comparative Study Between SQ3R (Survey, question, read, recite and review) and Discussion Method to the Grade XI Madrasah Aliyah Ittihadul Muballighin Ujung Gading Students’ Comprehending Narrative Text Ability in 2010-2011 Academic Year”. *Skripsi*. Padangsidempuan: FKIP, Universitas Muhammadiyah Tapanuli Selatan.

teaching present continuous tense by using direct method was 70.12, and the result of teaching present continuous tense by using grammar translation method was 75.25. So that, from her research, we can find that Grammar Translation Method is better than Direct Method.<sup>35</sup>

Based on related findings above, it could be concluded that reading ability was a big problem in the some schools, and the researchers had done a research about reading ability by using some strategies to solve the reading problem. So, the researcher hoped that STAD and CIRC could increase the student's reading ability and this research completed and contributed a previous findings. Moreover, the researcher wanted to research about "The Comparative Study Between Student Teams Achievement Division (STAD) and Cooperative Integrated Reading and Composition Methods of Students' Reading Ability in Narrative Text at Grade VIII of SMPN 4 Padangsidimpuan".

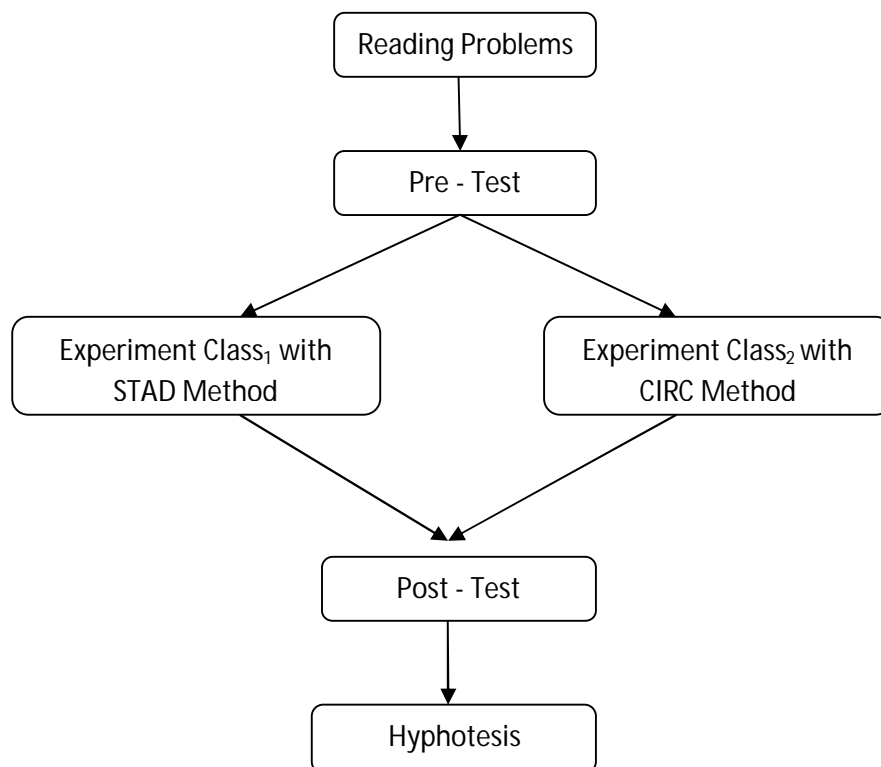
## 2. Conceptual Framework

The successful of reading ability depended on many factors. One of them was how the method of the teacher while teaching the material. The suitable method takes an important role for the teacher especially to get the good ability in reading narrative text.

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<sup>35</sup>Lenni Sri wahyuni Daulay. 2008. "The Comparative Study Between Direct Method and GTM in Teaching Present Continuous Tense to the Grade VII at SMP N 3 Padangsidimpuan in 2007/2008 Academic Year". *Skripsi*. Padangsidimpuan: FKIP, Universitas Muhammadiyah Tapanuli Selatan.

As known that Student Teams Achievement Division (STAD) method is method that should be inform the purpose and motivates, the teacher presentate the material, team work activity, doing evaluation, and team recognition to get the rewards in the end of learning. While Cooperative Integrated Reading and Composition (CIRC) method is cooperative learning method which design to teach reading and writing throught small grouping of students.Both of these method have same purpose, but both of them have different ways. So, in this case the researcher interested to comparing both of the method to students reading ability.





### 3. Hypothesis

Generally, a research is conducted in order to prove hypothesis. Hypothesis is one of the important things in construction a research. Suharsimi Arikunto said “ Hipotesis adalah jawaban yang bersifat sementara terhadap permasalahan penelitian sampai terbukti melalui data yang terkumpul.”<sup>36</sup> It means, that hypothesis is an answer tentatively to the problem of the research until proved through the data collected. The hypothesis of this research is stated that : “There was difference between students’ reading ability in narrative text by using STAD Method and CIRC Method at grade VIII of SMP Negeri 4 Padangsidempuan.”

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<sup>36</sup>Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik* (Jakarta: Rhineka Cipta, 2006), p. 71.

## CHAPTER III

### RESEARCH METHODOLOGY

#### A. Place and schedule of the research

This research will be done at junior high school (SMP) Negeri 4 Padangsidempuan. It is located on Jalan Sutan Soripada Mulia No.42 Padangsidempuan. The schedule of this research is from February 2015 up to finished.

#### B. Research Design

The kind of the research that will be implemented is the experimental research. L. R Gay said, "Experimental research is the only type of research that can test hypothesis to establish cause and effect."<sup>1</sup>

From the definition above, researcher concludes that the experiment is a kind of research that had aim to know the causal effect relationship between one or more variable to other variables.

In this research, the researcher uses two classes as an experiment class and as a control class. The experiment class is the class that taught with STAD, as a treatment. Meanwhile, the control class is the class that taught with using CIRC Method. It can be seen from the table:

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<sup>1</sup>L. R Gay, *Educational Research* (USA: Pearson Education, 2009), p. 367.

**Table 1**  
**Table of Design Instrument**

Class		Treatment	
Experiment Class	Pre Test	Teaching Narrative Text by using STAD (Student Teams Achievement Division)	Post Test
Control Class	Pre Test	Teaching Narrative Text by using CIRC (Cooperative Integrated Reading and Composition)	Post Test

## 1. Population and Sample

### a) Population

The population is all the subjects of research in conducting the research. According to Donal Ary, "Population is defined as all members of any well defined class of people, events or subject."<sup>2</sup> Sugiyono states, "That population is the generalization area consist of, subject/object that has quantity and certain character that is pointed by researcher to be learned and next get the conclusion."<sup>3</sup> It means that population is number of whole subjects of the research that is very important in doing reserach.

Furthermore, Arikunto states that population is all of the subjects of the research.<sup>4</sup> It means, all of the subjects in the research are become population of the research. And this research will be implemented in SMPNegeri 4 Padangsidimpuan. The population is Grade VIII Students at

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<sup>2</sup>Donal Ary, *Introduction to Research in Education* (Canada: Vicky Knight, 2006), p. 167.

<sup>3</sup>Sugiyono, *Metode Penelitian Administrasi* (Bandung: Alfabeta, 2002), p. 57.

<sup>4</sup>Suharsimi Arikunto, *Op.cit*, p. 130.

SMPN 4 Padangsidimpuan.in this research the researcher takes 20 classes as the population which consist of 488 students.

**Table 2**

The Population of the Eighth Grade Students of SMP Negeri 4 Padangsidimpuan in 2014/2015 Academic Years

No	Classroom	Male	Female	Amount
1	VIII – 1	6	16	22
2	VIII – 2	12	12	24
3	VIII – 3	6	19	25
4	VIII – 4	12	12	24
5	VIII – 5	10	17	27
6	VIII – 6	12	15	27
7	VIII – 7	15	20	35
8	VIII – 8	17	7	24
9	VIII – 9	16	8	24
10	VIII- 10	10	11	21
11	VIII – 11	11	11	22
12	VIII – 12	14	10	24
13	VIII – 13	7	17	24
14	VIII – 14	11	12	23
15	VIII – 15	12	12	24
16	VIII – 16	15	10	25
17	VIII – 17	15	8	23
18	VIII – 18	12	12	24
19	VIII – 19	15	8	23
20	VIII – 20	14	9	23
TOTAL NUMBER				488

b) Sample

According to Gay and Airasian, “Sample comprises the individuals, items, or events selected from a larger group referred to as a population.” Then, Muhammad Ali stated that sample is partial taken from the whole subject and representative of the population.

In this research, the researcher uses random sampling. The researcher chooses two classes. The researcher chooses VIII-5 consists of 27 students and VIII-6 consists of 27 students. Therefore, total samples are 54 students. Before using random sampling, the researcher uses normality and homogeneity test, they are:<sup>5</sup>

a. Normality Test

In Normality test, the data can be tested with Chi-square:

$$x^2 = \sum \left( \frac{f_o - f_h}{f_h} \right)$$

Where:

$x^2$ =Chi-Square

$f_o$ =Frequency is gotten from the sample/result of observation (questioner)

$f_h$ =Frequency is gotten from the sample as image from frequency is hoped from the population.

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<sup>5</sup>Mardalis, *Metode Penelitian: Suatu Pendekatan Proposal* (Jakarta: Bumi Aksara, 2003), p. 85.

To calculate the result of Chi- Quadrate uses significant level 5% (0,05) and degree of freedom as big as total of frequency is lessened 3 (dk= k-3). If result  $\chi_{count}^2 < \chi_{table}^2$ . So, it can be concluded that data is distributed by normal.

b. Homogeneity Test

Homogeneity test is used to know whether control class and experimental class have the same variant or not. If both of classes are same, it can be called homogeneous. Homogeneity is the similarity of variance of the group will be compared. So, the function of homogeneity test was to find out whether the data homogeny or not. It used Harley test, as follow:<sup>6</sup>

$$F = \frac{\text{Thebiggestvariant}}{\text{Thesmallestvariant}}$$

Where:

$n_1$ = Total of the data that bigger variant

$n_2$ = Total of the data that smaller variant

Hypothesis is rejected if  $F \leq F_{\frac{1}{2}\alpha(n_1-1)(1=n_2-1)}$  While if  $F_{count} > F_{table}$  hypothesis is accepted. It determined with significant level 5% (0,05) and dk numerator is  $(n_1 - 1)$  while dk denominator is  $(n_2 - 1)$ .

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<sup>6</sup>Agus Irianto, *Statistik Konsep Dasar dan Aplikasinya* (Padang: P2PLTK, 2003), p. 276.

## 2. Instrumentation

In this research, the researcher uses test. This test includes the cognitive test. The tests measure the current status of individuals on school-taught subjects. Standardised tests are available for individual curriculum areas such as reading.<sup>7</sup>

From explanation in chapter II the indicator of reading comprehension has three indicators, the indicators are students able to identify social function of the text, to identify generic structure and the last is to identify the meaning of the text.

**Table 3**

The Indicators Reading Ability Test

PRE – TEST

No	Indicator Items	Items	Number of Items	Score	Total Score
1	Social Function	4	1, 7, 17, 25	5	20
2	Identifying specific information from the text				
	a. Orientation	4	2, 13, 23, 16	5	20
	b. Complication	4	6, 12, 18, 22	5	20
	c. Resolution	4	5,20, 24, 15	5	20
3	Identifying the Meaning of difficult word	4	10, 11, 19, 21	5	20
TOTAL		20			100

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<sup>7</sup>L.R. Gay and Peter Airasian, *Op. cit.*, p. 154.

**Table 4**  
The Indicators Reading Ability Test  
POST – TEST

No	Indicator Items	Items	Number of Items	Score	Total Score
1	Social Function	4	2, 6, 12, 22	5	20
2	Identifying specific information from the text				
	1.Orientation	4	1, 17, 24, 8	5	20
	2. Complication	4	7, 15, 18, 25	5	20
	3.Resolution	4	5,10, 19, 21	5	20
3	Identifying the Meaning of difficult word	4	3,11, 20, 23	5	20
TOTAL		20			100

There are two essential aspects to find more information about the specific tests; those are validity of measuring instruments and Reliability of measuring instruments. These two aspects are explain in the following paragraph.

### 3. Validity and Realibility Instrument

#### a. Validity of Measuring Instruments

Validity is the most important quality of a test. It is the degree to which a test measures what it is supposed to measure and, consequently permits appropriate interpretations of test scores. There are three main point forms of validity are content, criterion-related, and construct.



In this research, the writer uses content validity to establish validity of instrument. Content validity is of prime importance for achievement test. Content validity is determined by expert judgment of item and sample validity.<sup>8</sup>

To know the validity of items, researcher uses the correlation Biserial formula, as follow:<sup>9</sup>

$$r_{pbi} = \frac{Mp - Mt}{SD_t} \sqrt{\frac{p}{q}}$$

Where:

$r_{pbi}$  = Number of index Correlation point Biserial

$Mp$  = Re-average of the score of the students answer correctly

$M_t$  = Re-average of the total score that achieved success by member of the test.

$SD_t$  = Standard of deviation

$P$  = Proportion of the students answer correctly

$P = \frac{\text{Total of the students answer correctly}}{\text{Total of the students}}$

$q$  = Proportion of the incorrect answer students

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<sup>8</sup>*Ibid.*, p. 161.

<sup>9</sup>Anas Sudijono, *Pengantar Statistik Pendidikan* (Jakarta: Raja Grafindo Persada, 2008) p.

Result of calculation by coefficient of correlation Biserial is determined if  $r_{pbi} > r_{table}$  with the significant level 5 % (0,374) with the table r product moment. So, the item is tested valid.

### b. Reliability of Measuring Instruments

Reliability is the degree to which a test consistently measures whatever it measures. Reliability is express numerically, usually as a coefficient ranging from 0.0 to 1.0; a high coefficient ranging indicates high reliability.<sup>10</sup>

Testing of instrument reliability can be done with the technique of KR.20 (Kuder Richardson) formula, as follow:

$$r_{11} = \left( \frac{n}{n-1} \right) \left( \frac{St^2 - \sum pq}{St^2} \right)$$

Where:

$R_{11}$  : Reliability of the Instrument

N : Total of Question

$St^2$  : Variants Total

P :  $\frac{\text{Proporsi Subject who is right Answer}(1)}{N}$

Q :  $\frac{\text{Proporsi Subject who is Wrong Answer (0)}}{N}$

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<sup>10</sup>L.R. Gay and Peter Airasian, *Op. cit.*, p. 155.

Reliability is a good character of the test that refers to the consistency of the measurement. The test is reliable  $r_{\text{count}} > r_{\text{table}}$  by using formulation KR-20 with  $r_{\text{table}} 0.70$ .

Criteria of test reliability is as follows:<sup>11</sup>

$r_{11} = 0,70$  high correlation (reliable)

$r_{11} > 0,70$  high correlation (reliable)

$r_{11} < 0,70$  low correlation (un- reliable)

#### 4. Procedure of Collecting Data

In collecting data, the research conducts twice of test for these classes.

They are pre-test and post-test like in the table below:

**Table 5**  
Table Design of Collecting Data

Class	Pre-test	Treatment	Post-test
Experimental Class	✓	✓	✓
Control Class	✓	✓	✓

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<sup>11</sup>Anas Sudijono, *Op.Cit.*, p. 209.

The process of testing is explained as follow:

a. Pre-test

Experimental class and control class are tested with using pre-test before doing treatment. The function of the pre-test is to find the mean scores of the experimental class and control class before the researcher give treatment. In this case, the researcher uses some steps. There are:

- 1) The researcher prepares the test 20 items.
- 2) The researcher distributes the paper of the test to students of experimental class and control class.
- 3) The researcher explains what students to do.
- 4) Giving time.
- 5) The students answer the question
- 6) Collecting their paper test to researcher
- 7) The researcher checks the answer of students and fined the mean score of experiment and control class.

b. Treatment

The writer teaches that one group, and the writer divided class into two. (as expeiment class and control class). The writer choose group A using STAD method (as experiment class) and class B using CIRC method (as control class). The researcher has some procedures for experiment class. There are:

1) Treatment in STAD Method

- a) The teacher convey the purpose of the material
- b) The students listen the teacher
- c) The teacher divided the students into some teams which consist  
4-5 members in each team
- d) The students move, and join with their teams
- e) The teacher give the task for their teams
- f) The students work with their teams to do the task
- g) The teacher give the motivation for students to study together  
with their teams
- h) The teacher collect the task of the teams
- i) The teacher give the quize for students individual
- j) The students answer the quize individually
- k) The teacher collect the quize

2) Treatment in CIRC Method

- a) The teacher divided the students into some groups that consist  
of 4-5 students
- b) The students move to their groups
- c) The teacher give the material for the students
- d) The students work together to read and understand the material
- e) The teacher give the quize for the students
- f) The students answer the quize with their teams

g) The teacher collect the quiz

c. Post-test

Experimental class and control class are given the final test after the treatment. This test is to measure students' reading comprehension. This test is used for investigating the comparative of reading achievement between STAD class and CIRC class. The researcher has some procedures. There are:

- a. The researcher prepares the test 20 items
- b. The researcher distributes the paper of the test to students of experimental class and control class
- c. The researcher explains what students to do
- d. Giving time
- e. The students answer the question
- f. Collecting their paper test to researcher
- g. The researcher checks the answer of students and fined the mean score of experiment and control class

## **5. Data Analysis**

In experimental design, the research pattern will be done toward experimental class and control class. After experimental process, two of classes are tested with using technique of data analysis as follow:

## 1. Requirement test

### a. Normality test

In Normality test, the data can be tested with Chi-quadrante:<sup>12</sup>

$$x^2 = \sum \left( \frac{f_o - f_h}{f_h} \right)$$

Where:

$x^2$  = Chi-Quadrate

$f_o$  = Frequency is gotten from the sample/result of observation  
(questioner)

$f_h$  = Frequency is gotten from the sample as image from frequency is  
hoped from the population.

To calculate the result of Chi- Quadrate, it is use significant level 5% (0,05) and degree of freedom as big as total of frequency is lessened 3 ( $dk = k-3$ ). If result  $x_{count}^2 < x_{table}^2$ . So, it can be concluded that data is distributed by normal.

### b. Homogeneity test

Homogeneity test is used to know whether control class and experimental class have the same variant or not. If the both of

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<sup>12</sup>Mardalis, *Loc.cit.*

classes are same, it can be called homogeneous. To test it, researcher use formula as follow:<sup>13</sup>

$$F = \frac{\text{The biggest variant}}{\text{The smallest variant}}$$

Where:

$n_1$  = Total of the data that bigger variant

$n_2$  = Total of the data that smaller variant

Hypothesis is rejected if  $F \leq F_{\frac{1}{2}\alpha(n_1-1)(1=n_2-1)}$  While, if

$F_{count} > F_{table}$  hypothesis is accepted. It determined with significant level 5% (0,05) and dk numerator is  $(n_1 - 1)$  while dk denominator is  $(n_2 - 1)$ .

## 2. Hypotheses test

In analysis data, the researcher uses t-test to test hypotheses, as follow:<sup>14</sup>

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

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<sup>13</sup>*Ibid.* p. 250.

<sup>14</sup>Sugiyono, *Statistika untuk Penelitian* (Bandung: Alfabeta, 2011), p. 138-139.



Where:

$\bar{x}_1$  = Mean of experimental class sample

$\bar{x}_2$  = Mean of control class sample

$n_1$  = Total of experimental class sample

$n_2$  = Total of control class sample

## CHAPTER IV

### DATA ANALYSIS

This chapter presents research result. In order to evaluate a comparative study between students' ability in reading narrative text by using Student Teams Achievement Division (STAD) and by using Cooperative Integrated Reading and Composition (CIRC). The researcher has calculated the data using pre test and post test. Applying quantitative research, the research used the formulation of t-test. Next, researcher will describe the result based on the data that has been researched as follow:

#### **A. Description of Data**

##### **1. Description of Data Before Using Direct Method**

###### **a. Score of Pre-Test Experimental Class**

In pre-test experimental class, the researcher calculated the result that got by the students in answering the question (test). The scores pre-test experimental class could be seen in the following table.

**Tabel VII**  
**The score of Experimental Class in Pre-Test**

Total	1605
Highest score	75
Lowest score	45
Mean	72.55
Median	71.55
Modus	67.75
Range	30
Interval	5
Standart deviation	8.7
Varians	79.48

Based on the table above the total score of experiment class in pre-test was 1605, mean was 72.55, standart deviation was 8.7, varians was 79.48, median was 71.55, range was 30,modus was 65.75, interval was 5. The researcher got the highest score was 75 and the lowest score was 45. It can be seen on appendix 18. Then, the computed of the frequency distribution of the students' score of experiment class could be applied into table frequency distribution as follow:

**Table VIII**  
**Frequency Distribution of Students' Score**

No	Interval	Mid Point	Frequency	Percentages
1	45 – 49	47	3	11.11%
2	50 – 54	52	4	14.81%
3	55 – 59	57	4	14.81%
4	60 – 64	62	5	18.51%
5	65 – 69	67	6	22.22%
6	70 – 74	72	3	11.11%
7	75 – 79	77	2	7.40%
<i>i</i> = 5			27	100%

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:

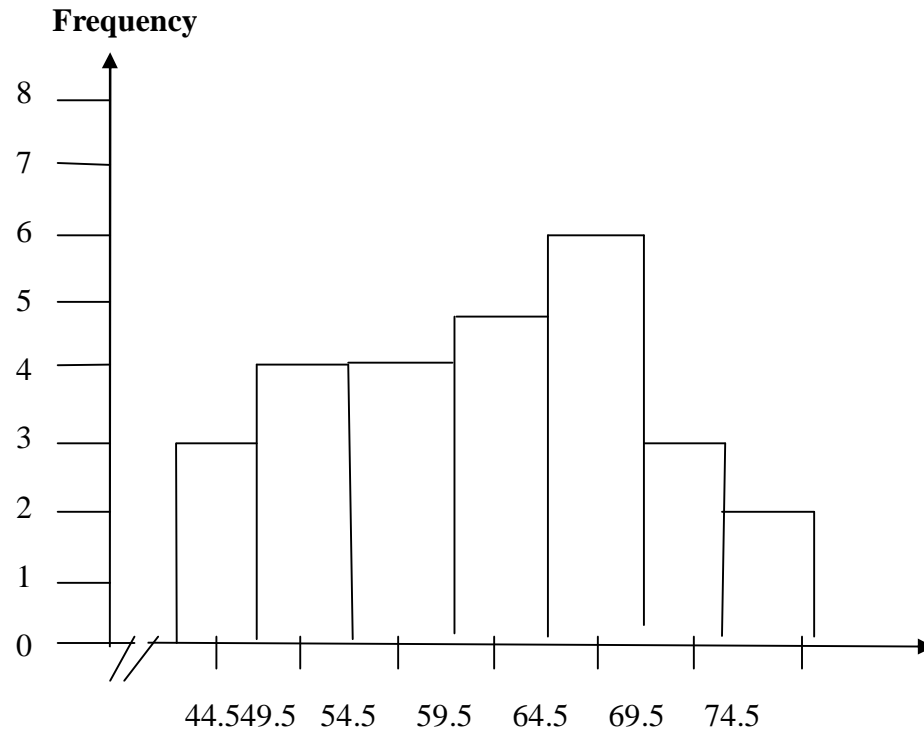


Figure 1: Score Pre Test of Experimental Class

#### b. Score of Pre Test Control Class

In pre-test control class, the researcher calculated the result that got by the students in answering the question (test). The scores pre test in control class could be seen in the following table:

**Tabel IX**  
**The Score of Control Class in PreTest**

Total	1690
Highest score	75
Lowest score	45
Mean	70.3
Median	72.4
Modus	67.5
Range	30
Interval	5
Standart deviation	8.8
Varians	94.94

Based on the table above the total score of control class in pre-test was 1690, mean was 70.3, median was 72.4, modus was 67.5, range was 30, interval was 5, standart deviation was 8.8, varians was 94.94. The researcher got the highest score was 75, and the lowest score was 45. It can be seen on appendix 18. Then, the computed of the frequency distribution of the students' score of experiment class could be applied into table frequency distribution as follow:

**Table X**  
**Frequency Distribution of Students' Score**

No	Interval Class	Mid Point	F	Percentages
1	45 – 49	47	2	7.40%
2	50 – 54	52	3	11.11%
3	55 – 59	57	4	14.81%
4	60 – 64	62	4	14.81%
5	65 – 69	67	6	22.22%
6	70 – 74	72	5	18.51%
7	75 – 79	77	3	11.11%
<i>i = 5</i>			27	100%

In order to get a description of the data clearly and completely, the researcher presents them in histogram on the following figure:

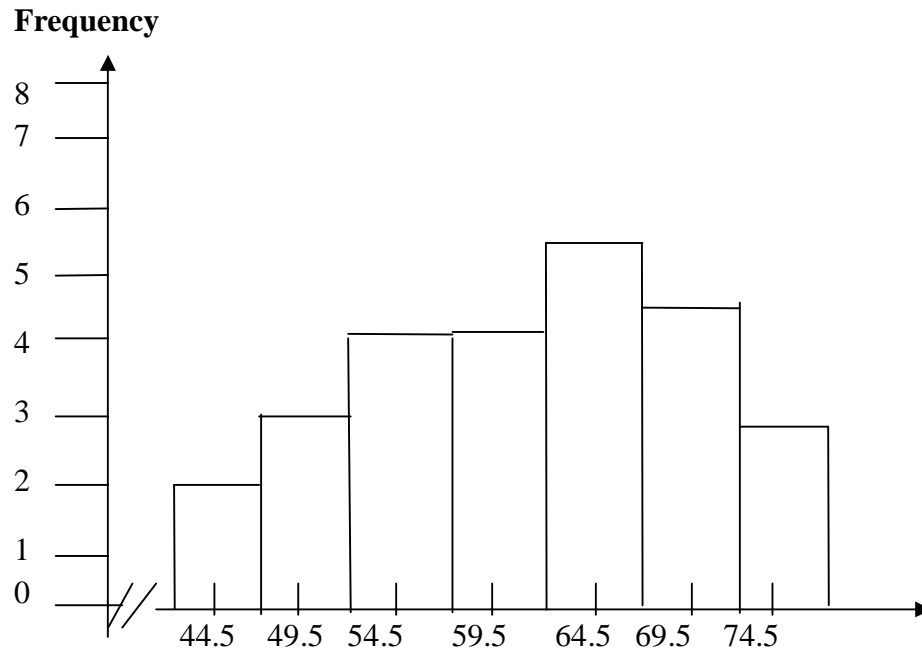


Figure 2: Score Pre test of Control Class

## 2. Description of Data After Using STAD and CIRC

### a. Description of Data using STAD

Based on the result of students' ability in reading narrative text by using test, the researcher calculated the score of experimental class in post-test was described on the table below:

**Tabel XI**  
**Score of Experimental Class in Post-Test**

Total	2200
Highest score	95
Lowest score	65
Mean	70.55
Median	88.55
Modus	85.2
Range	30
Interval	5
Standart deviation	8
Varians	66.95

Based on the table above the total score of experiment class in post-test was 2200, mean was 70.55, median was 88.55, modus was 85.2, range was 30, interval was 5, standart deviation was 8, varians was 66.95. The researcher got the highest score was 95 and the lowest score was 65. The calculation can be seen on the appendix 20. Then, the computed of the frequency distribution of the students' score of experiment class could be applied into table frequency distribution as follow:

**Table XII**  
**The Frequency Distribution of Students' Score**

No	Interval Class	Mid Point	F	Percentages
1	65 – 69	67	2	7.40%
2	70 – 74	72	2	7.40%
3	75 – 79	77	3	11.11%
4	80 – 84	82	7	25.92%
5	85 – 89	87	8	29.62%
6	90 – 94	92	2	7.40%
7	95 – 99	97	3	11.11%
<i>i</i> = 5			27	100%

Based on the table above, it can be drawn at histogram as follow:

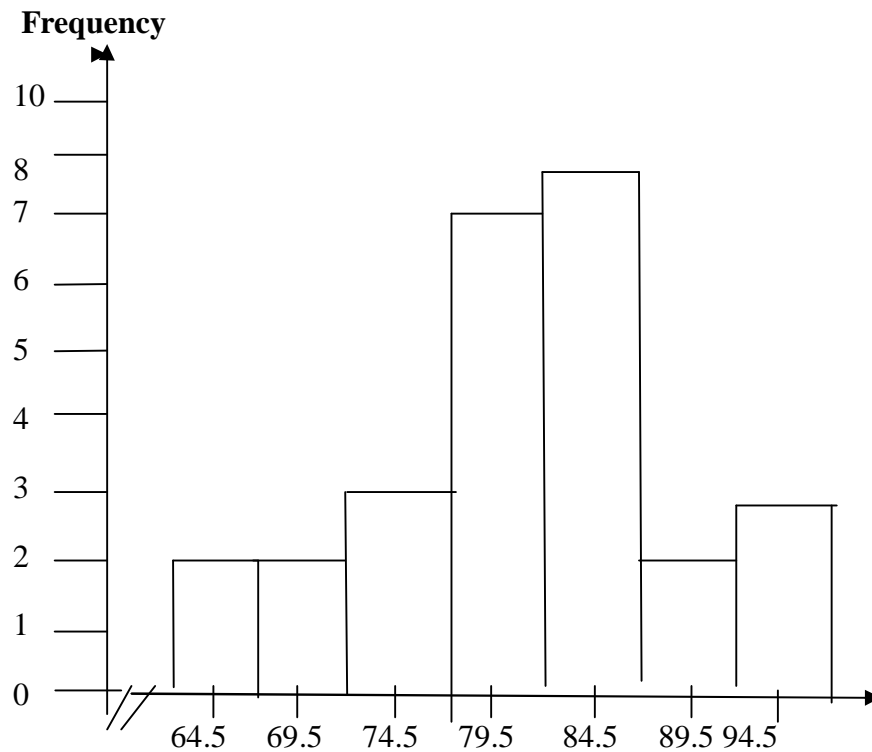


Figure 3: Score Post test of Experimental Class

#### b. Description of Data using STAD

The researcher calculated the score of control class in post-test was described on the table below:

**Tabel XIII**  
**The Score of Control Class in Post-Test**

Total	1810
Highest score	80
Lowest score	50
Mean	65
Median	72
Modus	66.35
Range	30
Interval	5
Standart deviation	8.4
Varians	73.57



Based on the table above the total score of control class in post-test was 1810 ,mean was 65, standart deviation was 8.4, varians was 73.57, median was 72, modus was 66.35, range was 30, interval was 5. The researcher got the highest score was 80 and the lowest 50 score was. The calculation can be seen in the appendix 21. Then, the computed of the frequency distribution of the students' score of control class could be applied into table frequency distribution as follow:

**Table XIV**  
**Frequency Distribution of Students' Score**

No	Interval Class	Mid Point	F	Percentages
1	50 – 54	52	2	7.40%
2	55 – 59	57	2	7.40%
3	60 – 64	62	3	11.11%
4	65 – 69	67	7	25.92%
5	70 – 74	72	5	18.51%
6	75 – 79	77	5	18.51%
7	80 – 84	82	3	11.11%
<i>i</i> = 5			27	100%

Based on the table above, it can be drawn at histogram as follow:

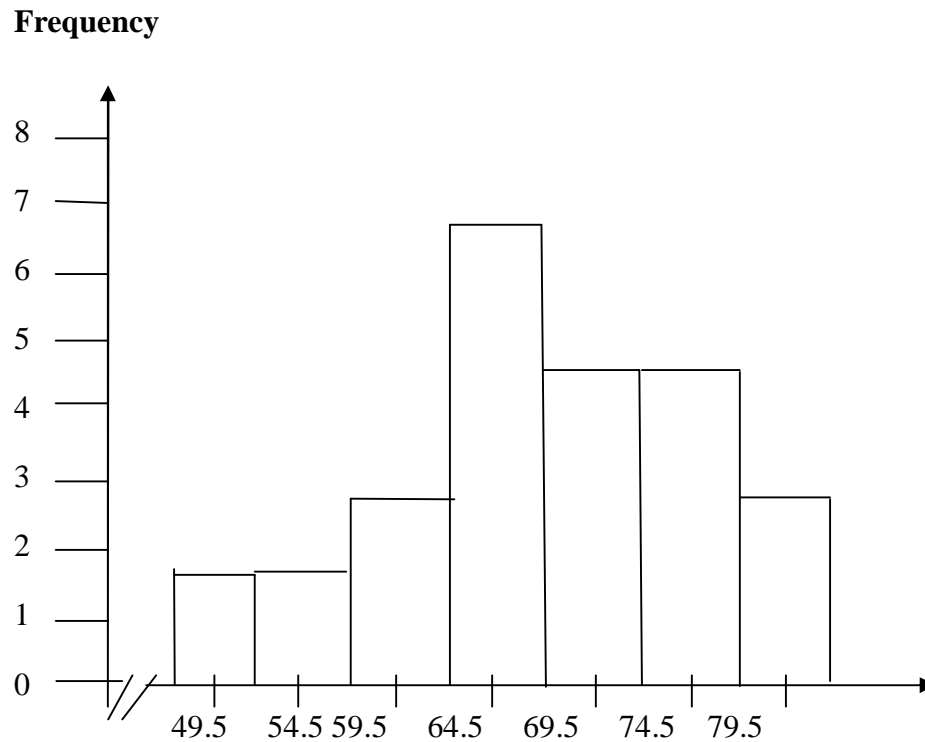


Figure 4: Score Post test of Control Class

### c. Technique of Data Analysis

#### 1. Requirement test

##### a. Normality and Homogeneity Pre-Test

##### 1) Normality of Experimental Class and Control Class in Pre-Test

**Tabel XV**  
**Normality and Homogeneity in Pre-Test**

Class	Normality Test		Homogeneity Test	
	$t_{count}$	$t_{table}$	$t_{count}$	$t_{table}$
Experiment Class	-4.94	5.991	1.16 < 2.052	
Control Class	1.91	5.991		

Based on the table above researcher calculation, the score of experiment class  $t_{\text{count}} = -4.94 < t_{\text{table}} = 5.991$  with  $n = 27$  and control class  $t_{\text{count}} = 1.91 < t_{\text{table}} = 5.991$  with  $n = 27$ , and real level  $\alpha = 0.05$ . Cause  $t_{\text{count}} < t_{\text{table}}$  in the both class. So,  $H_a$  was accepted. It mean that experiment class and control class were distributed normal. It can be seen in appendix 18 and 19.

## 2) Homogeneity of Experimental Class and Control Class in Pre-test

The coefficient of  $F_{\text{count}} = 1.16$  was compared with F table. Where F table was determined at real  $\alpha = 0.05$ , and the different numerator  $dk = N - 1 = 27 - 1 = 26$  and denominator  $dk = N - 1 = 27 - 1 = 26$  So, by using the list of critical value at F distribution is got  $F_{0.05} = 2.042$  and  $2.052$ . It showed that  $F_{\text{count}} (1.16) < F_{\text{table}} (2.042 \& 2.052)$ . So, the researcher concluded that the variant from the data of the students' ability in reading narrative text at SMPN 4 Padangsidempuan by experimental and control class was homogen. The calculation can be seen on the appendix 19.

## b. Normality and Homogeneity Post Test

### 1) Normality of experimental class and control class in Post-test

**Tabel XVI**  
**Normality and homogeneity in post-test**

Class	Normality Test		Homogeneity Test	
	$t_{\text{count}}$	$t_{\text{table}}$	$t_{\text{count}}$	$t_{\text{table}}$
Experiment Class	4.79	5.991	1.09 < 2.052	
Control Class	3.11	5.991		

Based on the table above, the score of experimental class  $t_{\text{count}} = 4.79 < t_{\text{table}} = 5.991$  with  $n = 27$  and control class  $t_{\text{count}} = 3.11 < t_{\text{table}} = 5.991$  with  $n = 27$ , real level  $\alpha$  was 0.05, Cause  $t_{\text{count}} < t_{\text{table}}$  in the both class. So,  $H_a$  was accepted, it mean that experiment class and control class were distributed normal. It can be seen on appendix 20 and 22.

## 2) Homogeneity of Experimental Class and Control Class in Post-Test

The coefficient of  $F_{\text{count}} = 1.09$  was compared with F table. Where F table was determined at real  $\alpha = 0.05$ , and the different numerator  $dk = N - 1 = 27 - 1 = 26$  and denominator  $dk = N - 1 = 27 - 1 = 26$  So, by using the list of critical value at F distribution was got  $F_{0.05} = 2.042$  and 2.052. It show that  $F_{\text{count}} (1.09) < F_{\text{table}} (2.042 \ \& \ 2.052)$ . So, the researcher concluded that the variant from the data of the students' ability in reading narrative text at SMPN 4 Padangsidimpuan by experimental and control class was homogeny. The calculation can be seen on the appendix 22.

## 2. Hypothesis Test

The data would be analyzed to prove hypothesis by using formula of t-test. If  $t_{\text{count}} > t_{\text{table}}$   $H_0$  was rejected and  $H_a$  was accepted. Hypothesis alternative ( $H_a$ ) of research was "There was difference between students' reading ability by using STAD and CIRC Method." The calculation can be seen on the appendix 24.

**Table XVII**  
**Result of T-test from the Both Averages**

Pre-test		Post-test	
$t_{\text{count}}$	$t_{\text{table}}$	$t_{\text{count}}$	$t_{\text{table}}$
1.40	2.000	34.67	2.000

Based on researcher calculation, researcher found that  $t_{\text{count}}$  34.67. while  $t_{\text{table}}$  2.000. With opportunity 5% and  $d_t = (n_1 + n_2 - 2) = (27 + 27 - 2) = 52$ . If  $t_{\text{count}} > t_{\text{table}}$   $H_0$  was rejected and  $H_a$  was accepted ( $34.67 > 2.000$ ). It means there was difference between students' reading ability by using STAD and CIRC Method. In this case, the mean score of experiment class by using STAD was 86.5, and mean score of control class was 65. So, the students' ability in reading narrative text by using STAD was better than CIRC method. The calculation can be seen on the appendix 23 and 24.

#### **d. Discussion**

Based on the related findings and the theory, the researcher discussed the result of this research and compared with the related findings. Constructivism theory is theory describing how learning happens and focuses on the factors that affect of students involvement. In learning process work with group of friends is very important, students can learn with their friend and exchange ideas with one another. So, based on theory above the researcher concluded that students ability in reading can compare STAD and CIRC Method.

A script of Lindayanti had done research about “The Comparative Study Between SQ3R (Survey, question, read, recite and review) and Discussion method to the grade XI Madrasah Aliyah Ittihadul Muballighin Ujung Gading Students’ Comprehending Narrative Text Ability in 2010-2011 Academic Year”. The result of her research showed the mean score experimental class in pre-test was 67.5 and mean score control class in pre-test was 60. And script of Lenni Sri wahyuni Daulay had done research about “The Comparative Study Between Direct Method and GTM in Teaching Present Continuous Tense to the Grade VII at SMP N 3 Padangsidempuan in 2007/ 2008 Academic Year”. The result of her research showed the mean score of experimental class in pre-test was 69.5 and mean score of control class in pre-test was 65. Then, the researcher found the students reading ability by using STAD and CIRC method showed the result of mean score experimental class in pre-test was 72.55 and control class in pre-test was 70.3. It was indicated that the score of STAD and CIRC was bigger than SQ3R, Discussion Method, Direct Method, and GTM.

The result of mean score SQ3R and Discussion Method in post-test was 70 and 68.75 ( $70 > 68.75$ ). Then, the result of mean score GTM and Direct Method in post-test was 75.25 and 70.12 ( $72.25 > 70.12$ ) and the result of mean score STAD in post-test was 86.5 and mean score of CIRC in post-test was 65 ( $86.5 > 65$ ). So, from explanation above the mean score of STAD was higher

than mean score in GTM, SQ3R, Discussion Method, Direct Method and CIRC.

The result of interval pre-test and post-test in experimental class. First, the script of Lindayanti was 67.5 and 70, so the interval was 2.5. Second, the script of Lenni Sri Wahyuni Daulay was 69.5 and 75.25, so the interval was 2.75. The last, the researcher's script was 72.55 and 86.5, so the interval was 13.95. From those intervals, the interval of this research was higher than the previous researches.

Then  $t_{\text{count}}$  and  $t_{\text{table}}$  of SQ3R and Discussion Method in pre-test was  $(1.66 < 1.69)$ , then  $t_{\text{count}}$  and  $t_{\text{table}}$  of GTM and Direct Method in pre-test was  $(1.82 < 2.000)$ , and then  $t_{\text{count}}$  and  $t_{\text{table}}$  of STAD and CIRC in pre-test was  $(1.40 < 2.000)$  and  $t_{\text{count}}$  and  $t_{\text{table}}$  of SQ3R and Discussion Method in post-test was  $(2.20 > 1.69)$ ,  $t_{\text{count}}$  and  $t_{\text{table}}$  of GTM and Direct Method in post-test was  $(2.14 > 2.000)$ , then  $t_{\text{count}}$  and  $t_{\text{table}}$  of STAD and CIRC in post-test was  $(34.67 > 2.000)$ . So, the hypothesis was accepted.

Then, the researcher concluded the students reading ability by using STAD and CIRC method showed the result of mean score experimental class and control class in pre-test  $(72.55 > 70.3)$  and  $t_{\text{count}} < t_{\text{table}}$   $(1.40 < 2.000)$  the hypothesis was accepted. In post test the result of experimental class was higher than control class  $(86.5 > 65)$  and  $t_{\text{count}} > t_{\text{table}}$   $(34.67 > 2.000)$  so the hypothesis was accepted. It means the result and hypothesis testing showed that STAD and CIRC method had the effect, and hypothesis alternative ( $H_a$ )

was accepted and hypothesis zero ( $H_0$ ) was rejected. It was indicated that the score of STAD was bigger than CIRC method.

Based on the explanation above, the researcher concluded that hypotheses alternative was accepted and there was difference between students' reading ability by using STAD and CIRC Method.

**e. Threats of the Research**

The researcher found the threats of this research as follows:

1. The students needed more time for answering the test.
2. There were some students that were noisy while teaching and learning process. So, it can disturb the concentration of the others.
3. There were some students that were lack of serious to answer the test in pre-test and post-test. It can be the threat of the research. So, the researcher can not reach the validity of trustworthiness data.



## CHAPTER V

### CONCLUSION AND SUGGESTION

#### A. Conclusion

Based on the result of the research and calculation of the data, the researcher got the conclusion that there was the difference between students' reading ability by using STAD and CIRC Method at grade VIII of SMP Negeri 4 Padangsidimpuan. If  $t_{count} > t_{table}$   $H_0$  was rejected and  $H_a$  was accepted,  $t_{count}$  was higher than  $t_{table}$  ( $34.67 > 2.000$ ). So, the hypothesis alternative ( $H_a$ ) was accepted. Mean score of experimental class in pre-test was 72.55, it was bigger than control class 70.3 ( $72.55 > 70.3$ ). Mean score of experimental class in post-test was 86.5, it was bigger than control class 65 ( $86.5 > 65$ ). The researcher concluded that STAD method more effective than CIRC method on students' reading ability in narrative text.

#### B. Suggestion

After finishing this research, the researcher got much information in English teaching and learning process. Therefore, the writer has suggestion to:

1. For teacher, as an English teacher were hoped to use appropriate method to explain or to teach English subject to the students. Then, from the result of the research, STAD method better than CIRC method. So that, the writer suggests STAD method can be applied on the English teaching classroom especially for the teachers who want to increase students' reading ability.

2. The Principal of SMPN 4 Padangsidempuan to motivate the teacher, especially English teachers to teach as well as possible by maximizing using of STAD method in teaching English.
3. Other researcher, the researcher hopes that the others researchers who want to conduct a research related to this research to find the others influence of these strategies deeply.

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## **CURRICULUM VITAE**

### **A. Identity**

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### **B. Parent**

1. Father's name : Sutan Hamonangan Sinaga
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### **C. Educational Background**

1. Elementary School : SD N 200114 wek - IV (2005)
2. Junior High School : MTs.S Baharuddin (2008)
3. Senior High School : MAN 1 Padangsidempuan (2011)
4. Institute : IAIN Padangsidempuan (2015)

## Appendix 18

### RESULT OF NORMALITY TEST IN PRE – TEST RESULT OF THE NORMALITY TEST OF VIII-5 IN PRE - TEST

1. The score of VIII-5 class in pre test from low score to high score:

45	45	45	50	50	50	50	55	55
55	55	60	60	60	60	60	65	65
65	65	65	65	70	70	70	75	75

2. High = 75

Low = 45

Range = High – Low

$$= 75 - 45$$

$$= 30$$

3. Total of Classes =  $1 + 3,3 \log (n)$

$$= 1 + 3,3 \log (27)$$

$$= 1 + 3,3 ( 1,43)$$

$$= 1 + 4.71$$

$$= 5.71$$

$$= 6$$

4. Length of Classes =  $\frac{range}{total\ of\ class} = \frac{30}{6} = 5$

5. Mean

Interval Class	F	X	x'	fx'	x' <sup>2</sup>	fx' <sup>2</sup>
45 – 49	3	47	4	12	16	48
50 – 54	4	52	3	12	9	36
55 – 59	4	57	2	8	4	16
60 – 64	5	62	1	5	1	5
65 – 69	6	<b>67</b>	0	0	0	0
70 – 74	3	72	-1	-3	1	3
75 – 79	2	77	-2	-4	4	8
<i>i</i> = 5	27	-	-	30	-	116

$$M_x = M^1 + i \frac{\Sigma fx^1}{N}$$

$$= 67 + 5 \left( \frac{30}{27} \right)$$

$$= 67 + 5 (1.11)$$

$$= 67 + (5.55)$$

$$= 72.55$$

$$SD_t = i \sqrt{\frac{\Sigma fx'^2}{N} - \left[ \frac{\Sigma fx'}{N} \right]^2}$$

$$= \sqrt[5]{\frac{116}{27} - \left( \frac{30}{27} \right)^2}$$

$$= \sqrt[5]{4.29 - (1.11)^2}$$

$$= \sqrt[5]{4.29 - 1.23}$$

$$= \sqrt[5]{3.06}$$

$$= 5 (1.74)$$

$$= 8.7$$



Table of Normality Data Test with Chi Kuadrat Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	$f_h$	$f_0$	$\frac{(f_0-f_h)}{f_h}$
75–79	79,5	0.79	0.2852	0.19	5.13	2	-0.61
70 – 74	74,5	0.22	0.0871	-0.04	-1.08	3	-3.77
65 – 69	69,5	-0.35	0.1368	-0.18	-4.86	6	-2.23
60 – 64	64,5	-0.92	0.3212	-0.11	-2.97	5	-2.68
55 – 59	59,5	-1.5	0.4332	0.41	11.07	4	-0.63
50 – 54	54,5	-2.07	0.01923	0.01	0.27	4	1.38
45 – 49	49,5	-2.64	0.00402	0.003	0.081	3	3.60
	44,5	-3.22	0.00064				
						$X^2$	-4.94

Based on table above, reseracher found that  $x^2_{count} = -4.94$  while  $x^2_{table}=5.991$  cause  $x^2_{count} < x^2_{table}$  ( $-4.94 < 5.991$ ) with degree of freedom  $dk = 5 - 3 = 2$  and significat level  $\alpha = 5\%$ . So distribution of VIII-5 class (Pre-test) is normal.

## 6. Median

No	Interval of Classes	F	Fk
1	45 - 49	3	3
2	50 - 54	4	7
3	55 - 59	4	11
4	60 - 64	5	16
5	<b>65 - 69</b>	<b>6</b>	22
6	70 - 74	3	25
7	75 - 79	2	27

Position of Me in the interval of classes is number 5, that:

$$Bb = 64.5$$

$$F = 5$$

$$fm = 6$$

$$i = 5$$

$$n = 27$$

$$1/2n = 13.5$$

So :

$$Me = Bb + i \left( \frac{n/2 - F}{fm} \right)$$

$$= 64.5 + 5 \left( \frac{13.5 - 5}{6} \right)$$

$$= 64.5 + 5 (1.41)$$

$$= 64.5 + 7.05$$

$$= 71.55$$

7. Modus

No	Interval of Classes	F	Fk
1	45 – 49	3	3
2	50 - 54	4	7
3	55 - 59	4	11
4	60 - 64	5	16
5	<b>65 - 69</b>	<b>6</b>	22
6	70 - 74	3	25
7	75 - 79	2	27

$$M_o = L + \frac{d_1}{d_1 + d_2} i$$

$$L = 64.5$$

$$d_1 = 1$$

$$d_2 = 3$$

$$i = 5$$

$$\begin{aligned} M_o &= 64.5 + \frac{1}{1+3} 5 \\ &= 64.5 + 0.25 (5) \\ &= 64.5 + 1.25 \\ &= 65.75 \end{aligned}$$

## RESULT OF NORMALITY TEST IN PRE TEST

### RESULT OF THE NORMALITY TEST OF VIII-6 IN PRE-TEST

1. The score of VIII-6 class in pre test from low score to high score:

45	45	50	50	50	55	55	55	55
60	60	60	60	65	65	65	70	70
70	70	70	70	75	75	75	75	75

2. High = 75

Low = 45

Range = High – Low

$$= 75 - 45$$

$$= 30$$

3. Total of Classes =  $1 + 3,3 \log (n)$

$$= 1 + 3,3 \log (27)$$

$$= 1 + 3,3 ( 1,43)$$

$$= 1 + 4.72$$

$$= 5.72$$

$$= 6$$

4. Length of Classes =  $\frac{range}{total\ of\ class} = \frac{30}{6} = 5$

5. Mean

Interval Class	F	X	x'	fx'	x' <sup>2</sup>	fx' <sup>2</sup>
45 – 49	2	47	4	8	16	32
50 – 54	3	52	3	9	9	27
55 – 59	4	57	2	8	4	16
60 – 64	4	62	1	4	1	4
65 – 69	6	67	0	0	0	0
70 – 74	5	72	-1	-5	1	5
75 – 79	3	77	-2	-6	4	12
<i>i</i> = 5	27	-	-	18	-	96

$$\begin{aligned}
M_x &= M^1 + i \frac{\sum fx^1}{N} \\
&= 67 + 5 \left( \frac{18}{27} \right) \\
&= 67 + 5 (0.66) \\
&= 67 + (3.3) \\
&= 70.3
\end{aligned}$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum fx'^2}{N} - \left[ \frac{\sum fx'}{N} \right]^2} \\
&= 5 \sqrt{\frac{96}{27} - \left( \frac{18}{27} \right)^2} \\
&= 5 \sqrt{3.55 - (0.66)^2} \\
&= 5 \sqrt{3.55 - 0.43} \\
&= 5 \sqrt{3.12} \\
&= 5 (1.76) \\
&= 8.8
\end{aligned}$$

Table of Normality Data Test with Chi Kuadrat Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	$f_h$	$f_0$	$\frac{(f_0-f_h)}{f_h}$
75–79	79,5	1.04	0.3508	0.17	5.95	3	-0.49
70 – 74	74,5	0.47	0.1808	-0.28	-9.8	5	-0.48
65 – 69	69,5	-0.09	0.46414	-0.20	-7	6	-0.14
60 – 64	64,5	-0.65	0.25785	0.14	4.2	4	-0.04
55 – 59	59,5	-1.22	0.11123	0.07	2.8	4	0.64
50 – 54	54,5	-1.79	0.03673	0.02	0.7	3	0.42
45 – 49	49,5	-2.36	0.00914	0.00	0	2	2.00
	44,5	-2.93	0.00169				
						$X^2$	1.91

Based on table above, reseracher found that  $x^2_{count} = 1.91$  while  $x^2_{table} = 5.991$  cause  $x^2_{count} < x^2_{table}$  ( $1.91 < 5.991$ ) with degree of freedom  $dk = 5 - 3 = 2$  and significat level  $\alpha = 5\%$ . So distribution of VIII-6 class (Pre-test) is normal.

## 6. Median

No	Interval of Classes	F	Fk
1	45 - 49	2	2
2	50 - 54	3	5
3	55 - 59	4	9
4	60 - 64	4	13
5	<b>65 - 69</b>	<b>6</b>	19
6	70 - 74	5	24
7	75 - 79	3	27

Position of Me in the interval of classes is number 5, that:

$$Bb = 64.5$$

$$F = 4$$

$$fm = 6$$

$$i = 5$$

$$n = 27$$

$$1/2n = 13.5$$

So :

$$Me = Bb + i \left( \frac{n/2 - F}{fm} \right)$$

$$= 64.5 + 5 \left( \frac{13.5 - 4}{6} \right)$$

$$= 64.5 + 5 (1.58)$$

$$= 64.5 + 7.9$$

$$= 72.4$$

7. Modus

No	Interval of Classes	F	Fk
1	45 - 49	2	2
2	50 - 54	3	5
3	55 - 59	4	9
4	60 - 64	4	13
5	<b>65 - 69</b>	<b>6</b>	19
6	70 - 74	5	24
7	75 - 79	3	27

$$M_o = L + \frac{d_1}{d_1 + d_2} i$$

$$L = 64.5$$

$$d_1 = 2$$

$$d_2 = 1$$

$$i = 5$$

$$\begin{aligned} M_o &= 64.5 + \frac{2}{2+1} 5 \\ &= 64.5 + 0.6 (5) \\ &= 64.5 + 3 \\ &= 67.5 \end{aligned}$$



## RESULT OF NORMALITY TEST IN PRE TEST

### RESULT OF THE NORMALITY TEST OF VIII-7 IN PRE-TEST

1. The score of VIII-7 class in pre test from low score to high score:

45	45	50	50	50	55	55	55	55	55
55	60	60	60	60	65	65	65	65	65
65	65	65	70	70	70	70	70	70	75
75	75	75	75	75					

2. High = 75  
 Low = 45  
 Range = High – Low

$$= 75 - 45$$

$$= 30$$

3. Total of Classes =  $1 + 3,3 \log (n)$   
 $= 1 + 3,3 \log (35)$   
 $= 1 + 3,3 ( 1,54)$   
 $= 1 + 5.08$   
 $= 6.08$   
 $= 6$

4. Length of Classes =  $\frac{range}{total\ of\ class} = \frac{30}{6} = 5$

5. Mean

Interval Class	F	X	x	fx	x <sup>2</sup>	fx <sup>2</sup>
45 – 49	2	47	4	8	16	32
50 – 54	3	52	3	9	9	27
55 – 59	6	57	2	12	4	24
60 – 64	4	62	1	4	1	4
65 – 69	8	<b>67</b>	0	0	0	0
70 – 74	6	72	-1	-6	1	6
75 – 79	6	77	-2	-12	4	24
<i>i</i> = 5	35	-	-	15	-	117

$$\begin{aligned}
M_x &= M^1 + i \frac{\sum fx^1}{N} \\
&= 67 + 5 \left( \frac{15}{35} \right) \\
&= 67 + 5 (0.42) \\
&= 67 + (2.1) \\
&= 69.1
\end{aligned}$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum fx'^2}{N} - \left[ \frac{\sum fx'}{N} \right]^2} \\
&= 5 \sqrt{\frac{117}{35} - \left( \frac{15}{35} \right)^2} \\
&= 5 \sqrt{3.34 - (0.42)^2} \\
&= 5 \sqrt{3.34 - 0.17} \\
&= 5 \sqrt{3.17} \\
&= 5 (1.78) \\
&= 8.9
\end{aligned}$$

Table of Normality Data Test with Chi Kuadrat Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	$f_h$	$f_0$	$\frac{(f_0-f_h)}{f_h}$
75–79	79,5	1.16	0.3770	0.15	5.25	6	0.14
70 – 74	74,5	0.60	0.2257	0.20	7	6	-0.14
65 – 69	69,5	0.04	0.0160	-30	-10	8	-0.2
60 – 64	64,5	-0.51	0.30854	0.16	5.6	4	-0.28
55 – 59	59,5	-1.07	0.14231	0.09	3.15	6	0.90
50 – 54	54,5	-1.64	0.05050	0.03	1.05	3	1.85
45 – 49	49,5	-2.20	0.01390	0.01	0.35	2	4.71
	44,5	-2.76	0.00289				
						$X^2$	6.98

Based on table above, reseracher found that  $x^2_{count} = 6.98$  while  $x^2_{table}=5.991$  cause  $x^2_{count} < x^2_{table}$  ( $6.98 < 5.991$ ) with degree of freedom  $dk = 5 - 3 = 2$  and significat level  $\alpha = 5\%$ . So distribution of VIII-7 class (Pre-test) is not normal.

## 6. Median

No	Interval of Classes	F	Fk
1	45 - 49	2	2
2	50 - 54	3	5
3	55 - 59	6	11
4	60 - 64	4	15
5	<b>65 - 69</b>	<b>8</b>	23
6	70 - 74	6	29
7	75 - 79	6	35

Position of Me in the interval of classes is number 5, that:

$$Bb = 64.5$$

$$F = 4$$

$$fm = 8$$

$$i = 5$$

$$n = 35$$

$$1/2n = 17.5$$

$$\begin{aligned}
 \text{So : Me} &= Bb + i \left( \frac{n/2 - F}{fm} \right) \\
 &= 64.5 + 5 \left( \frac{17.5 - 4}{8} \right) \\
 &= 64.5 + 5 (1.68) \\
 &= 64.5 + 8.4 \\
 &= 72.9
 \end{aligned}$$

7. Modus

No	Interval of Classes	F	Fk
1	45 – 49	2	2
2	50 - 54	3	5
3	55 - 59	6	11
4	60 - 64	4	15
5	<b>65 - 69</b>	<b>8</b>	23
6	70 - 74	6	29
7	75 - 79	6	35

$$M_o = L + \frac{d_1}{d_1 + d_2} i$$

$$L = 64.5$$

$$d_1 = 4$$

$$d_2 = 2$$

$$i = 5$$

$$\begin{aligned} M_o &= 64.5 + \frac{4}{4+2} 5 \\ &= 64.5 + 0.66 (5) \\ &= 64.5 + 3.3 \\ &= 67.8 \end{aligned}$$

## Appendix 19

### HOMOGENEITY TEST (PRE-TEST)

Calculation of parameter to get variant of the first class as experimental class sample by using student teams achievement division (STAD) and variant of the second class as control class sample by using cooperative integrated reading and composition method (CIRC) are used homogeneity test by using formula:

$$S^2 = \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)}$$

Hypotheses:

$$H_0 : \delta_1^2 = \delta_2^2$$

$$H_1 : \delta_1^2 \neq \delta_2^2$$

A. Variant of the VIII-5class is:

NO	Xi	Xi <sup>2</sup>
1	45	2025
2	45	2025
3	45	2025
4	50	2500
5	50	2500
6	50	2500
7	50	2500
8	55	3025
9	55	3025
10	55	3025
11	55	3025
12	60	3600
13	60	3600
14	60	3600
15	60	3600
16	60	3600
17	65	4225
18	65	4225

19	65	4225
20	65	4225
21	65	4225
22	65	4225
23	70	4900
24	70	4900
25	70	4900
26	75	5625
27	75	5625
	1605	97475

$$n = 27$$

$$\sum xi = 1605$$

$$\sum xi^2 = 97475$$

So:

$$S^2 = \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)}$$

$$= \frac{27(97475) - (1605)^2}{27(27-1)}$$

$$= \frac{2631825 - 2576025}{27(26)}$$

$$= \frac{55800}{702}$$

$$= 79.48$$

B. Variant of the VIII-6 class is:

NO	Xi	Xi <sup>2</sup>
1	45	2025
2	45	2025
3	50	2500
4	50	2500
5	50	2500
6	55	3025
7	55	3025
8	55	3025
9	55	3025
10	60	3600
11	60	3600
12	60	3600
13	60	3600
14	65	4225
15	65	4225
16	65	4225
17	70	4900
18	70	4900
19	70	4900
20	70	4900
21	70	4900
22	70	4900
23	75	5625
24	75	5625
25	75	5625
26	75	5625
27	75	5625
	1690	108250

$$\begin{aligned}n &= 27 \\ \sum xi &= 1690 \\ \sum xi^2 &= 108250\end{aligned}$$

So:

$$S^2 = \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)}$$



$$\begin{aligned}
& \frac{27(108250) - (1690)^2}{27(27-1)} \\
&= \frac{2922750 - 2856100}{27(26)} \\
&= \frac{66650}{702} \\
&= 94.94
\end{aligned}$$

C. Variant of the VIII- 7 class is:

NO	$X_i$	$X_i^2$
1	45	2025
2	45	2025
3	50	2500
4	50	2500
5	50	2500
6	55	3025
7	55	3025
8	55	3025
9	55	3025
10	55	3025
11	55	3025
12	60	3600
13	60	3600
14	60	3600
15	60	3600
16	65	4225
17	65	4225
18	65	4225
19	65	4225
20	65	4225
21	65	4225
22	65	4225
23	65	4225
24	70	4900
25	70	4900
26	70	4900
27	70	4900
28	70	4900

29	70	4900
30	75	5625
31	75	5625
32	75	5625
33	75	5625
34	75	5625
35	75	5625
	2200	141050

$$n = 35$$

$$\sum xi = 2200$$

$$\sum xi^2 = 141050$$

So:

$$S^2 = \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)}$$

$$= \frac{35(141050) - (2200)^2}{35(35-1)}$$

$$= \frac{4936750 - 4840000}{35(34)}$$

$$= \frac{96750}{1190}$$

$$= 81.30$$

The Formula was used to test hypothesis was:

1. VIII-6 and VIII -7 :

$$F = \frac{\textit{The Biggest Variant}}{\textit{The Smallest Variant}}$$

So:

$$F = \frac{94.94}{81.30}$$

$$= 1.16$$

After doing the calculation, researcher found that  $F_{\text{count}} = 1.16$  with  $\alpha$  5 % and  $dk = 27$  from the distribution list F, researcher found that  $F_{\text{table}} = 2.052$ , cause  $F_{\text{count}} < F_{\text{table}}$  ( $1.16 < 2.052$ ). So, there is no difference the variant between the VIII-6 class and VIII-7class. It means that the variant is homogenous.

2. VIII -6 and VIII -5 :

$$F = \frac{\textit{The Biggest Variant}}{\textit{The Smallest Variant}}$$

So:

$$\begin{aligned} F &= \frac{94.94}{79.48} \\ &= 1.19 \end{aligned}$$

After doing the calculation, researcher found that  $F_{\text{count}} = 1.19$  with  $\alpha$  5 % and  $dk = 27$  from the distribution list F, researcher found that  $F_{\text{table}} = 2.052$ , cause  $F_{\text{count}} < F_{\text{table}}$  ( $1.19 < 2.052$ ). So, there is no difference the variant between the VIII-6 class and VIII-5 class. It means that the variant is homogenous.

3. VIII -7 and VIII - 5 :

$$F = \frac{\textit{The Biggest Variant}}{\textit{The Smallest Variant}}$$

So:

$$\begin{aligned} F &= \frac{81.30}{79.48} \\ &= 1.02 \end{aligned}$$

After doing the calculation, researcher found that  $F_{\text{count}} = 1.02$  with  $\alpha$  5 % and  $dk = 35$  and  $27$  from the distribution list F, researcher found that  $F_{\text{table}} = 2.042$  &  $2.052$ , cause  $F_{\text{count}} < F_{\text{table}}$  ( $1.02 < 2.042$  &  $2.052$ ). So, there is no difference the variant between the VIII-7 class and VIII-5 class. It means that the variant is homogenous.

## Appendix 20

### RESULT OF THE NORMALITY TEST OF EXPERIMENT CLASS IN POST TEST

1. The score of experiment class in post test from low score to high score:

65	65	70	70	75	75	75	80	80
80	80	80	80	80	85	85	85	85
85	85	85	85	90	90	95	95	95

2. High = 95

Low = 65

Range = high – low

= 95- 65

= 30

3. Total of classes =  $1 + 3,3 \log (n)$   
 $= 1 + 3,3 \log (27)$   
 $= 1 + 3,3 ( 1.43)$   
 $= 1 + 4.7$   
 $= 5.7$   
 $= 6$

4. Length of Classes =  $\frac{range}{total\ of\ class} = \frac{30}{6} = 5$

5. Mean

Interval Class	F	X	x'	fx'	x' <sup>2</sup>	fx' <sup>2</sup>
65 – 69	2	52	4	8	16	32
70 – 74	2	57	3	6	9	18
75 – 79	3	62	2	6	4	12
80 – 84	7	67	1	7	1	7
85 – 89	8	72	0	0	0	0
90 – 94	2	77	-1	-2	1	2
95 – 99	3	82	-2	-6	4	12
$i = 5$	27	-	-	19	-	83

$$\begin{aligned}
 Mx &= M^1 + i \frac{\Sigma fx^1}{N} \\
 &= 83 + 5 \left( \frac{19}{27} \right) \\
 &= 83 + 5(0.70) \\
 &= 83 + (3.5) \\
 &= 86.5
 \end{aligned}$$

$$\begin{aligned}
 SD_t &= i \sqrt{\frac{\Sigma fx'^2}{N} - \left[ \frac{\Sigma fx'}{N} \right]^2} \\
 &= 5 \sqrt{\frac{83}{27} - \left( \frac{19}{27} \right)^2} \\
 &= 5 \sqrt{3.07 - (0.70)^2} \\
 &= 5 \sqrt{3.07 - (0.49)} \\
 &= 5 \sqrt{2.58} \\
 &= 5 (1.60) \\
 &= 8
 \end{aligned}$$

Table of Normality Data Test with Chi Kuadrat Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	$f_h$	$f_0$	$\frac{(f_0-f_h)}{f_h}$
95-99	99.5	1.62	0.4474	0.10	2.7	3	0.11
90-94	94.5	1	0.3413	0.19	5.13	2	-0.61
85-89	89.5	0.37	0.1443	-0.25	-6.75	8	-2.18
80-84	84.5	-0.25	0.40129	0.20	5.4	7	0.29
75-79	79.5	-0.87	0.19215	0.12	3.24	3	-0.07
70-74	74.5	-1.5	0.06681	0.04	1.08	2	0.85
65-69	69.5	-2.12	0.01700	0.01	0.27	2	6.40
	65.5	-2.62	0.00440				
						$X^2$	4.79

Based on table above, researcher found that  $x^2_{count} = 4.79$  while  $x^2_{table} = 5.991$  cause  $x^2_{count} < x^2_{table}$  ( $4.79 < 5.991$ ) with degree of freedom  $dk = 5 - 3 = 2$  and significant level  $\alpha = 5\%$ . So distribution of experiment class (Post-test) was normal

## 6. Median

No	Interval Class	F	Fk
1	65 - 69	2	2
2	70 - 74	2	4
3	75 - 79	3	7
4	80 - 84	7	14
5	85 - 89	<b>8</b>	22
6	90 - 94	2	24
7	95 - 99	3	27

Position of Me in the interval of classes is number 2, that:

$$Bb = 84.5$$

$$F = 7$$

$$fm = 8$$

$$i = 5$$

$$n = 27$$

$$1/2n = 13.5$$

So :

$$\begin{aligned} Me &= Bb + i \left( \frac{n/2 - F}{fm} \right) \\ &= 84.5 + 5 \left( \frac{13.5 - 7}{8} \right) \\ &= 84.5 + 5 (0.81) \\ &= 84.5 + 4.05 \\ &= 88.55 \end{aligned}$$



## 7. Modus

No	Interval Class	F	Fk
1	65 - 69	2	2
2	70 - 74	2	4
3	75 - 79	3	7
4	80 - 84	7	14
5	85 - 89	<b>8</b>	22
6	90 - 94	2	24
7	95 - 99	3	27

$$M_o = L + \frac{d_1}{d_1 + d_2} i$$

$$L = 84.5$$

$$d_1 = 1$$

$$d_2 = 6$$

$$i = 5$$

$$M_o = 84.5 + \frac{1}{1+6} 5$$

$$= 84.5 + 0.14(5)$$

$$= 84.5 + 0.7$$

$$= 85.2$$

## Appendix 21

### RESULT OF THE NORMALITY TEST OF CONTROL CLASS IN POST TEST

1. The score of control class in post test from low score to high score:

50	50	55	55	60	60	60	65	65
65	65	65	65	65	70	70	70	70
70	75	75	75	75	75	80	80	80

2. High = 80

Low = 50

$$\begin{aligned} \text{Range} &= \text{High} - \text{Low} \\ &= 80 - 50 \\ &= 30 \end{aligned}$$

3. Total of Classes =  $1 + 3,3 \log (n)$

$$\begin{aligned} &= 1 + 3,3 \log (27) \\ &= 1 + 3,3 ( 1.43) \\ &= 1 + 4.7 \\ &= 5.7 \\ &= 6 \end{aligned}$$

4. Length of Classes =  $\frac{\text{range}}{\text{total of class}} = \frac{30}{6} = 5$

5. Mean

Interval Class	F	X	x'	fx'	x' <sup>2</sup>	fx' <sup>2</sup>
50 – 54	2	52	3	6	9	18
55 – 59	2	57	2	4	4	8
60 – 64	3	62	1	3	1	3
65 – 69	7	<b>67</b>	0	0	0	0
70 – 74	5	72	-1	-5	1	5
75 – 79	5	77	-2	-10	4	20
80 – 84	3	82	-3	-9	9	27
<i>i</i> = 5	27	-	-	-11	-	81

$$\begin{aligned}
M_x &= M^1 + i \frac{\sum fx^1}{N} \\
&= 67 + 5 \left( \frac{-11}{27} \right) \\
&= 67 + 5(-0.40) \\
&= 67 + (-2) \\
&= 65
\end{aligned}$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum fx'^2}{N} - \left[ \frac{\sum fx'}{N} \right]^2} \\
&= 5 \sqrt{\frac{81}{27} - \left( \frac{-11}{27} \right)^2} \\
&= 5 \sqrt{3 - (-0.40)^2} \\
&= 5 \sqrt{3 - (-0.16)} \\
&= 5 \sqrt{2.84} \\
&= 5 (1.68) \\
&= 8.4
\end{aligned}$$

Table of Normality Data Test with Chi Kuadrat Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	$f_h$	$f_0$	$\frac{(f_0-f_h)}{f_h}$
80 - 84	84.5	2.32	0.4898	0.03	0.81	3	2.70
75 – 79	79.5	1.72	0.4573	0.09	2.43	5	1.05
70 – 74	74.5	1.11	0.3665	0.16	4.32	5	0.15
65 – 69	69.5	0.53	0.2019	-0.27	-7.29	7	-1.96
60– 64	64.5	-0.05	0.48006	0.22	5.94	3	-0.49
55- 59	59.5	-0.65	0.25785	0.15	4.05	2	-0.50
50 – 54	54.5	-1.25	0.10565	0.06	1.62	2	0.23
	50.5	-1.70	0.04457				
						$X^2$	3.11

Based on table above, researcher found that  $x^2_{count} = 3.11$  while  $x^2_{table} = 5.991$  cause  $x^2_{count} < x^2_{table}$  ( $3.11 < 5.991$ ) with degree of freedom  $dk = 5 - 3 = 2$  and significant level  $\alpha = 5\%$ . So distribution of control class (Post-test) was normal.

## 6. Median

No	Interval Class	F	Fk
1	50 - 54	2	2
2	55 - 59	2	4
3	60 - 64	3	7
4	65 - 69	7	14
5	70 - 74	5	19
6	75 - 79	5	24
7	80 - 84	3	27

Position of Me in the interval of classes is number 2, that:

$$Bb = 64.5$$

$$F = 3$$

$$fm = 7$$

$$i = 5$$

$$n = 27$$

$$1/2n = 13.5$$

So :

$$Me = Bb + i \left( \frac{\frac{n}{2} - F}{fm} \right)$$

$$= 64.5 + 5 \left( \frac{13.5 - 3}{7} \right)$$

$$= 64.5 + 5 (1.5)$$

$$= 64.5 + 7.5$$

$$= 72$$

## 7. Modus

No	Interval Class	F	Fk
1	50 - 54	2	2
2	55 - 59	2	4
3	60 - 64	3	7
4	65 - 69	7	14
5	70 - 74	5	19
6	75 - 79	5	24
7	80 - 84	3	27

$$M_o = L + \frac{d_1}{d_1 + d_2} i$$

$$L = 64.5$$

$$d_1 = 3$$

$$d_2 = 5$$

$$i = 5$$

$$\begin{aligned} M_o &= 64.5 + \frac{3}{3+5} 5 \\ &= 64.5 + 0.37 (5) \\ &= 64.5 + 1.85 \\ &= 66.35 \end{aligned}$$

## Appendix 22

### HOMOGENEITY TEST (POST TEST)

#### 1. EXPERIMENT CLASS

NO	$X_i$	$X_i^2$
1	65	4225
2	65	4225
3	70	4900
4	70	4900
5	75	5625
6	75	5625
7	75	5625
8	80	6400
9	80	6400
10	80	6400
11	80	6400
12	80	6400
13	80	6400
14	80	6400
15	85	7225
16	85	7225
17	85	7225
18	85	7225
19	85	7225
20	85	7225
21	85	7225
22	85	7225
23	90	8100
24	90	8100
25	95	9025
26	95	9025
27	95	9025
	2200	181000

$$n = 27$$
$$\sum x_i = 2200$$
$$\sum x_i^2 = 181000$$

So:

$$\begin{aligned}
S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\
&= \frac{27(181000) - (2200)^2}{27(27-1)} \\
&= \frac{4887000 - 4840000}{27(26)} \\
&= \frac{47000}{702} \\
&= 66.95
\end{aligned}$$

## 2. CONTROL CLASS

NO	Xi	Xi <sup>2</sup>
1	50	2500
2	50	2500
3	55	3025
4	55	3025
5	60	3600
6	60	3600
7	60	3600
8	65	4225
9	65	4225
10	65	4225
11	65	4225
12	65	4225
13	65	4225
14	65	4225
15	70	4900
16	70	4900
17	70	4900
18	70	4900
19	70	4900
20	75	5625
21	75	5625
22	75	5625
23	75	5625
24	75	5625



25	80	6400
26	80	6400
27	80	6400
	1810	123250

$$n = 27$$

$$\sum xi = 1810$$

$$\sum xi^2 = 123250$$

So:

$$S^2 = \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)}$$

$$= \frac{27(123250) - (1810)^2}{27(27-1)}$$

$$= \frac{3327750 - 3276100}{27(26)}$$

$$= \frac{51650}{702}$$

$$= 73.57$$

The Formula was used to test hypothesis was:

4. VIII-5 and VIII-6 :

$$F = \frac{\textit{The Biggest Variant}}{\textit{The Smallest Variant}}$$

So:

$$F = \frac{73.57}{66.95}$$

$$= 1.09$$

After doing the calculation, researcher found that  $F_{\text{count}} = 1.09$  with  $\alpha$  5 % and  $dk = 27 \ \& \ 27$  from the distribution list F, researcher found that  $F_{\text{table}} = 2.052 \ \& \ 2.052$ , cause  $F_{\text{count}} < F_{\text{table}}$  ( $1.09 < 2.052 \ \& \ 2.052$ ). So, there is no difference the variant between the VIII-5 class and VIII-6 class. It means that the variant is homogenous.

## Appendix 23

### $T_{\text{test}}$ OF THE BOTH AVERAGES IN PRE-TEST

The formula was used to analyse homogeneity test of the both averages was t-test, that:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \text{ with } S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 2)S_2^2}{n_1 + n_2 - 2}}$$

So:

$$\begin{aligned} S &= \sqrt{\frac{(27-1) 94.94 + (27-2)79.48}{27+27-2}} \\ &= \sqrt{\frac{26 (94.94) + 25 (79.48)}{52}} \\ &= \sqrt{\frac{2468.44 + 1987}{52}} \\ &= \sqrt{\frac{4455.44}{52}} \\ &= \sqrt{85.68} \\ &= 9.25 \end{aligned}$$

So:

$$\begin{aligned} t &= \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \\ t &= \frac{72.55 - 70.3}{9.25 \sqrt{\frac{1}{27} + \frac{1}{27}}} \\ &= \frac{2.25}{9.25 \sqrt{0.037 + 0.037}} \end{aligned}$$

$$\begin{aligned}
&= \frac{2.25}{9.25 (0.174)} \\
&= \frac{2.25}{1.60} \\
&= 1.40
\end{aligned}$$

Based on researcher calculation result of the homogeneity test of the both averages, researcher found that  $t_{\text{count}} = 1.40$  with opportunity  $(1 - \alpha) = 1 - 5\% = 95\%$  and  $dk = n_1 + n_2 - 2 = 27 + 27 - 2 = 52$ , researcher found that  $t_{\text{table}} = 2.000$ , cause  $t_{\text{count}} < t_{\text{table}} (1.40 < 2.000)$ . So,  $H_0$  was rejected, it means no difference the average between the first class as experimental class and the second class as control class in this research.

## Appendix 24

### T<sub>test</sub> OF THE BOTH AVERAGES IN POST – TEST

The formula was used to analyse homogeneity test of the both averages was t-test, that:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \text{ with } S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 2)S_2^2}{n_1 + n_2 - 2}}$$

So:

$$\begin{aligned} S &= \sqrt{\frac{(27-1) 73.57 + (27-2)66.95}{27+27-2}} \\ &= \sqrt{\frac{27 (73.57) + 25 (66.95)}{52}} \\ &= \sqrt{\frac{1986.39 + 1673.75}{52}} \\ &= \sqrt{\frac{3660.14}{52}} \\ &= \sqrt{70.38} \\ &= 8.38 \end{aligned}$$

So:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$\begin{aligned}
t &= \frac{86.5 - 65}{8.37 \sqrt{\frac{1}{27} + \frac{1}{27}}} \\
&= \frac{5.55}{8.38 \sqrt{0.037 + 0.037}} \\
&= \frac{21.5}{8.38 (0.074)} \\
&= \frac{21.5}{0.62} \\
&= 34.67
\end{aligned}$$

Based on researcher calculation result of the homogeneity test of the both averages, researcher found that  $t_{\text{count}} = 34.67$  with opportunity  $(1 - \alpha) = 1 - 5\% = 95\%$  and  $dk = n_1 + n_2 - 2 = 27 + 27 - 2 = 52$ , researcher found that  $t_{\text{table}} = 2.000$ , cause  $t_{\text{count}} > t_{\text{table}} (34.67 > 2.000)$ . So,  $H_a$  was accepted, it means there was the difference average between the first class as experimental class and the second class as control class in this research.

**APPENDIX 25**

**Chi-Square Table**

<b>dk</b>	<b>Significant level</b>					
	<b>50%</b>	<b>30%</b>	<b>20%</b>	<b>10%</b>	<b>5%</b>	<b>1%</b>
<b>1</b>	0,455	1,074	1,642	2,706	3,841	6,635
<b>2</b>	1,386	2,408	3,219	4,605	<b>5,991</b>	9,210
<b>3</b>	2,366	3,665	4,642	6,251	7,815	11,341
<b>4</b>	3,357	4,878	5,989	7,779	9,488	13,277
<b>5</b>	4,351	6,064	7,289	9,236	11,070	15,086
<b>6</b>	5,348	7,231	8,558	10,645	12,592	16,812
<b>7</b>	6,346	8,383	9,803	12,017	14,067	18,475
<b>8</b>	7,344	9,524	11,030	13,362	15,507	20,090
<b>9</b>	8,343	10,656	12,242	14,684	16,919	21,666
<b>10</b>	9,342	11,781	13,442	15,987	18,307	23,209
<b>11</b>	10,341	12,899	14,631	17,275	19,675	24,725
<b>12</b>	11,340	14,011	15,812	18,549	21,026	26,217
<b>13</b>	12,340	15,119	16,985	19,812	22,362	27,688
<b>14</b>	13,339	16,222	18,151	21,064	23,685	29,141
<b>15</b>	14,339	17,222	19,311	22,307	24,996	30,578
<b>16</b>	15,338	18,418	20,465	23,542	26,296	32,000
<b>17</b>	16,338	19,511	21,615	24,769	27,587	33,409
<b>18</b>	17,338	20,601	22,760	25,989	28,869	34,805
<b>19</b>	18,338	21,689	23,900	27,204	30,144	36,191
<b>20</b>	19,337	22,775	25,038	28,412	31,410	37,566
<b>21</b>	20,337	23,858	26,171	29,615	32,671	38,932
<b>22</b>	21,337	24,939	27,301	30,813	33,924	40,289
<b>23</b>	22,337	26,018	28,429	32,007	35,172	41,638
<b>24</b>	23,337	27,096	29,553	33,196	35,415	42,980
<b>25</b>	24,337	28,172	30,675	34,382	37,652	44,314
<b>26</b>	25,336	29,246	31,795	35,563	38,885	45,642
<b>27</b>	26,336	30,319	32,912	36,741	40,113	46,963
<b>28</b>	27,336	31,391	34,027	37,916	41,337	48,278
<b>29</b>	28,336	32,461	35,139	39,087	42,557	49,588
<b>30</b>	29,336	33,530	36,250	40,256	43,773	50,892

**APPENDIX 26****Z-Table**

<b>Z</b>	<b>0.00</b>	<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.04</b>	<b>0.05</b>	<b>0.06</b>	<b>0.07</b>	<b>0.08</b>	<b>0.09</b>
<b>-3.9</b>	0.00005	0.00005	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00003	0.00003
<b>-3.8</b>	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00005	0.00005	0.00005
<b>-3.7</b>	0.00011	0.00010	0.00010	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008
<b>-3.6</b>	0.00016	0.00015	0.00015	0.00014	0.00014	0.00013	0.00013	0.00012	0.00012	0.00011
<b>-3.5</b>	0.00023	0.00022	0.00022	0.00021	0.00020	0.00019	0.00019	0.00018	0.00017	0.00017
<b>-3.4</b>	0.00034	0.00032	0.00031	0.00030	0.00029	0.00028	0.00027	0.00026	0.00025	0.00024
<b>-3.3</b>	0.00048	0.00047	0.00045	0.00043	0.00042	0.00040	0.00039	0.00038	0.00036	0.00035
<b>-3.2</b>	0.00069	0.00066	0.00064	0.00062	0.00060	0.00058	0.00056	0.00054	0.00052	0.00050
<b>-3.1</b>	0.00097	0.00094	0.00090	0.00087	0.00084	0.00082	0.00079	0.00076	0.00074	0.00071
<b>-3.0</b>	0.00135	0.00131	0.00126	0.00122	0.00118	0.00114	0.00111	0.00107	0.00104	0.00100
<b>-2.9</b>	0.00187	0.00181	0.00175	0.00169	0.00164	0.00159	0.00154	0.00149	0.00144	0.00139
<b>-2.8</b>	0.00256	0.00248	0.00240	0.00233	0.00226	0.00219	0.00212	0.00205	0.00199	0.00193
<b>-2.7</b>	0.00347	0.00336	0.00326	0.00317	0.00307	0.00298	0.00289	0.00280	0.00272	0.00264
<b>-2.6</b>	0.00466	0.00453	0.00440	0.00427	0.00415	0.00402	0.00391	0.00379	0.00368	0.00357
<b>-2.5</b>	0.00621	0.00604	0.00587	0.00570	0.00554	0.00539	0.00523	0.00508	0.00494	0.00480
<b>-2.4</b>	0.00820	0.00798	0.00776	0.00755	0.00734	0.00714	0.00695	0.00676	0.00657	0.00639
<b>-2.3</b>	0.01072	0.01044	0.01017	0.00990	0.00964	0.00939	0.00914	0.00889	0.00866	0.00842
<b>-2.2</b>	0.01390	0.01355	0.01321	0.01287	0.01255	0.01222	0.01191	0.01160	0.01130	0.01101
<b>-2.1</b>	0.01786	0.01743	0.01700	0.01659	0.01618	0.01578	0.01539	0.01500	0.01463	0.01426
<b>-2.0</b>	0.02275	0.02222	0.02169	0.02118	0.02068	0.02018	0.01970	0.01923	0.01876	0.01831
<b>-1.9</b>	0.02872	0.02807	0.02743	0.02680	0.02619	0.02559	0.02500	0.02442	0.02385	0.02330



<b>-1.8</b>	0.03593	0.03515	0.03438	0.03362	0.03288	0.03216	0.03144	0.03074	0.03005	0.02938
<b>-1.7</b>	0.04457	0.04363	0.04272	0.04182	0.04093	0.04006	0.03920	0.03836	0.03754	0.03673
<b>-1.6</b>	0.05480	0.05370	0.05262	0.05155	0.05050	0.04947	0.04846	0.04746	0.04648	0.04551
<b>-1.5</b>	0.06681	0.06552	0.06426	0.06301	0.06178	0.06057	0.05938	0.05821	0.05705	0.05592
<b>-1.4</b>	0.08076	0.07927	0.07780	0.07636	0.07493	0.07353	0.07215	0.07078	0.06944	0.06811
<b>-1.3</b>	0.09680	0.09510	0.09342	0.09176	0.09012	0.08851	0.08691	0.08534	0.08379	0.08226
<b>-1.2</b>	0.11507	0.11314	0.11123	0.10935	0.10749	0.10565	0.10383	0.10204	0.10027	0.09853
<b>-1.1</b>	0.13567	0.13350	0.13136	0.12924	0.12714	0.12507	0.12302	0.12100	0.11900	0.11702
<b>-1.0</b>	0.15866	0.15625	0.15386	0.15151	0.14917	0.14686	0.14457	0.14231	0.14007	0.13786
<b>-0.9</b>	0.18406	0.18141	0.17879	0.17619	0.17361	0.17106	0.16853	0.16602	0.16354	0.16109
<b>-0.8</b>	0.21186	0.20897	0.20611	0.20327	0.20045	0.19766	0.19489	0.19215	0.18943	0.18673
<b>-0.7</b>	0.24196	0.23885	0.23576	0.23270	0.22965	0.22663	0.22363	0.22065	0.21770	0.21476
<b>-0.6</b>	0.27425	0.27093	0.26763	0.26435	0.26109	0.25785	0.25463	0.25143	0.24825	0.24510
<b>-0.5</b>	0.30854	0.30503	0.30153	0.29806	0.29460	0.29116	0.28774	0.28434	0.28096	0.27760
<b>-0.4</b>	0.34458	0.34090	0.33724	0.33360	0.32997	0.32636	0.32276	0.31918	0.31561	0.31207
<b>-0.3</b>	0.38209	0.37828	0.37448	0.37070	0.36693	0.36317	0.35942	0.35569	0.35197	0.34827
<b>-0.2</b>	0.42074	0.41683	0.41294	0.40905	0.40517	0.40129	0.39743	0.39358	0.38974	0.38591
<b>-0.1</b>	0.46017	0.45620	0.45224	0.44828	0.44433	0.44038	0.43644	0.43251	0.42858	0.42465
<b>-0.0</b>	0.50000	0.49601	0.49202	0.48803	0.48405	0.48006	0.47608	0.47210	0.46812	0.46414

**Z-Table**

<b>z</b>	<b>0.00</b>	<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.04</b>	<b>0.05</b>	<b>0.06</b>	<b>0.07</b>	<b>0.08</b>	<b>0.09</b>
<b>0.0</b>	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
<b>0.1</b>	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
<b>0.2</b>	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
<b>0.3</b>	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
<b>0.4</b>	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
<b>0.5</b>	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
<b>0.6</b>	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
<b>0.7</b>	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
<b>0.8</b>	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
<b>0.9</b>	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
<b>1.0</b>	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
<b>1.1</b>	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
<b>1.2</b>	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
<b>1.3</b>	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
<b>1.4</b>	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
<b>1.5</b>	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
<b>1.6</b>	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
<b>1.7</b>	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
<b>1.8</b>	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
<b>1.9</b>	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
<b>2.0</b>	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
<b>2.1</b>	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
<b>2.2</b>	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
<b>2.3</b>	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
<b>2.4</b>	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
<b>2.5</b>	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952



APPENDIX 27

Percentage Points of the t Distribution

Two Tail Test						
	0,50	0,20	0,10	0,05	0,02	0,01
One Tail Test						
dk	0,25	0,10	0,005	0,025	0,01	0,05
1	1,000	3,078	6,314	12,706	31,821	63,657
2	0,816	1,886	2,920	4,303	6,965	9,925
3	0,765	1,638	2,353	3,182	4,541	5,841
4	0,741	1,533	2,132	2,776	3,747	4,604
5	0,721	1,486	2,015	2,571	3,365	4,032
6	0,718	1,440	1,943	2,447	3,143	3,707
7	0,711	1,415	1,895	2,365	2,998	3,499
8	0,706	1,397	1,860	2,306	2,896	3,355
9	0,703	1,383	1,833	2,262	2,821	3,250
10	0,700	1,372	1,812	2,228	2,764	3,165
11	0,697	1,363	1,796	2,201	2,718	3,106
12	0,695	1,356	1,782	2,178	2,681	3,055
13	0,692	1,350	1,771	2,160	2,650	3,012
14	0,691	1,345	1,761	2,145	2,624	2,977
15	0,690	1,341	1,753	2,132	2,623	2,947
16	0,689	1,337	1,746	2,120	2,583	2,921
17	0,688	1,333	1,743	2,110	2,567	2,898
18	0,688	1,330	1,740	2,101	2,552	2,878
19	0,687	1,328	1,729	2,093	2,539	2,861
20	0,687	1,325	1,725	2,086	2,528	2,845
21	0,686	1,323	1,721	2,080	2,518	2,831
22	0,686	1,321	1,717	2,074	2,508	2,819
23	0,685	1,319	1,714	2,069	2,500	2,807
24	0,685	1,318	1,711	2,064	2,492	2,797
25	0,684	1,316	1,708	2,060	2,485	2,787
26	0,684	1,315	1,706	2,056	2,479	2,779
27	0,684	1,314	1,703	<b>2,052</b>	2,473	2,771
28	0,683	1,313	1,701	2,048	2,467	2,763
29	0,683	1,311	1,699	2,045	2,462	2,756
30	0,683	1,310	1,697	<b>2,042</b>	2,457	2,750
40	0,681	1,303	1,684	2,021	2,423	2,704
60	0,679	1,296	1,671	<b>2,000</b>	2,390	2,660
120	0,677	1,289	1,658	1,980	2,358	2,617
∞	0,674	1,282	1,645	1,960	2,326	2,576





