



**THE EFFECT OF COOPERATIVE INTEGRATED READING
AND COMPOSITION (CIRC) TECHNIQUE
ON STUDENTS' READING COMPREHENSION
AT GRADE XI SMA N 5 PADANGSIDIMPUAN**

A THESIS

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

Written By :

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**ENGLISH EDUCATION DEPARTMENT
TARBIYAH AND TEACHER TRAINING FACULTY
STATE INSTITUTE FOR ISLAMIC STUDIES
PADANGSIDIMPUAN
2019**



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Therefore, we hope that the thesis will soon be examined by the Thesis examiner team of English Education Department of Tarbiyah and Teacher Training Faculty IAIN Padangsidempuan. Thank you.

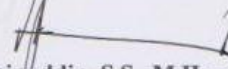
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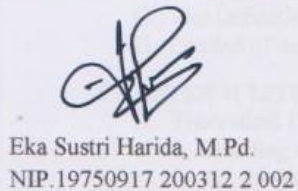

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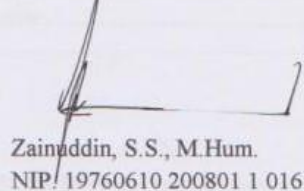

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I realize this thesis cannot be considered perfect without critiques and suggestions. Therefore, it is such a pleasure for me to get critiques and suggestions from the readers to make this thesis better.

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ABSTRACT

This research only focused to low ability of students' reading comprehension. It was solved by choosing Cooperative Integrated Reading and Composition technique. The problems of students in reading comprehension were: (1) The students was lack of vocabularies (2) The students felt bored. (3) The students reading comprehension was low (4) The teacher never applied the technique in teaching reading comprehension. They still used conventional technique in teaching reading. The purpose of this research is to know whether there is the effect of Cooperative Integrated Reading and Composition technique on students' reading comprehension at grade XI SMA N 5 Padangsidempuan.

The method that is used in this research was experimental research. Two classes were chosen randomly as the sample. They were XI IPA 3 as experimental class that consisted of 30 students and XI IPA 4 as control class that consisted of 30 students. It was taken after conducting normality and homogeneity test. The data was derived from pre-test and post-test. To analyze the data, the researcher used t-test formula.

After analyzing the data, the researcher found that the mean score of experimental class after using Cooperative Integrated Reading and Composition technique was higher than control class. Mean score of experimental class before using Cooperative Integrated Reading and Composition technique was 60.6 and mean score after using Cooperative Integrated Reading and Composition technique was 77.3 and it had gain 16.7. The effect of Cooperative Integrated Reading and Composition technique on students' reading comprehension at Grade XI SMA N 5 Padangsidempuan was 1.727 with t_{count} was higher than t_{table} ($1.727 > 1.67155$). It meant that H_a was accepted and H_0 was rejected. There was effect of Cooperative Integrated Reading and Composition technique on students' reading comprehension at grade XI SMA N 5 Padangsidempuan.

Key Words: Cooperative Integrated Reading and Composition Technique and Reading Comprehension

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ABSTRAK

Penelitian ini fokus pada nilai siswa yang rendah pada dalam pemahaman membaca. Telas diatasi dengan teknik Cooperative Integrated Reading and Composition. Masalah siswa dalam penelitian ini adalah: 1) siswa banyak kekurangan kosakata. 2) siswa merasa kegiatan membaca membosankan. 3) pemahaman membaca siswa rendah. (4) guru tidak pernah megaplikasikan teknik dalam mengakar reading comprehension. Guru hanya menggunakan teknik umum didalam mengajar reading. Tujuan dari penelitian ini adalah untuk mengetahui apakah ada pengaruh Teknik Cooperative Integrated Reading and Composition Terhadap Pemahaman Membaca Siswa di SMA N 5 Padangsidempuan kelas XI.

Metode yang digunakan dalam penelitian ini adalah penelitian eksperimen. Dua kelas dipilih secara acak sebagai sampel. Mereka adalah XI IPA 3 sebagai kelas eksperimen yang terdiridari 30 siswa dan XI IPA 4 sebagai kelas control yang terdiri dari 30 siswa. Sampel tersebut diperoleh setelah menggunakan tes normalitas dan homogenitas. Data diperoleh dari pre test dan post test. Untuk menganalisis data, peneliti menggunakan rumus t-test.

Setelah menganailis data, peneliti menemukan nilai rata-rata dari kelas eksperimen setelah menggunakan teknik Cooperative Integrated Reading and Composition lebih tinggi dari kelas control. Nilai rata-rata kelas eksperimen sebelum menggunakan teknik Cooperative Integrated Reading and Composition adalah 60.6 dan nilai rata-rata setelah menggunakan teknik Cooperative Integrated Reading and Composition adalah 77.3 dan memperoleh peningkatan sebesar 16.7. Pengaruh Teknik Cooperative Integrated Reading and Composition Terhadap Pemahaman Membaca Siswa di SMA N 5 Padangsidempuan kelas XI adalah 1.727 dengan t_{count} lebih tinggi dari t_{tabel} ($1.727 > 1.67155$). Itu memiliki arti bahwa H_a diterima dan H_0 ditolak. Ada peparuh Teknik Cooperative Integrated Reading and Composition Terhadap Pemahaman Membaca Siswa di SMA N 5 Padangsidempuan kelas XI.

Kata kunci: Teknik Cooperative Integrated Reading and Composition dan Pemahaman Membaca

TABLE OF CONTENTS

	Page
INSIDE TITTLE PAGE	i
LEGALIZATION ADVISORS SHEET	ii
AGREEMENT ADVISORS SHEET	iii
DECLATION OF SELF THESIS COMPLETION	iv
ACADEMIC CIVITY	v
SCHOLAR MUNAQOSYAH EXAMINATION	vi
LEGALIZATION OF DEAN OF TARBIYAH AND TEACHER TRAINING FACULTY	vii
ABSTRACT	viii
ACKNOWLEDGEMENT	x
TABLE OF CONTENTS	xiii
LIST OF TABLES	xv
LIST OF FIGURES	xvi
LIST OF APPENDIXES	xvii
CHAPTER I INTRODUCTION	
A. The Background of the Problem	1
B. The Identification of the Problem	5
C. The Limitation of the Problem.....	5
D. The Formulation of the Problem	5
E. The Research Objective.....	6
F. The Significances of the Research	6
G. The Definition of Operational Variable	7
H. Outline of the Thesis	7
CHAPTER II LITERATURE REVIEW	
A. Theoretical Description	
1. Reading Comprehension	
a. Definition of Reading Comprehension	9
b. The Purposes of Reading Comprehension	11
c. Types of Reading Comprehension.....	13
d. Principles of Reading Comprehension.....	14
e. Reading Assessment	16
2. Cooperative Integrated Reading and Composition (CIRC) Technique	
a. Definition of Cooperative Integrated Reading and Composition Technique.....	18
b. The purpose of Cooperative Integrated Reading and Composition.....	21
c. Procedure of Cooperative Integrated Reading	

and Composition.....	22
d. The Main Principle of Cooperative Integrated Reading and Composition.....	23
3. Report Text	
a. Definition of Report Text.....	24
b. The Generic Structure	24
c. The Language features	25
d. The Example of Report Text.....	26
B. Review of Related Findings.....	27
C. Conceptual Framework	29
D. Hypothesis of Research	30

CHAPTER III RESEARCH METHODOLOGY

A. The Place and Schedule of the Research	32
B. The Research Design.....	33
C. The Population and Sample	34
D. The Instrument of Collecting Data.....	36
E. The Validity and Reliability Instrument.....	38
F. The Procedures of the Research.....	40
G. The Technique of Analyzing Data	42

CHAPTER IV RESEARCH RESULT

A. The Description of Data	46
B. The Data Analysis	51
C. The Discussion.....	67
D. The Threats of the Research	69

CHAPTER V CONCLUSION AND SUGGESTION

A. Conclusion	71
B. Suggestion.....	71

REFERENCES

APPENDIXES

LIST OF TABLES

Table		Page
Table 1	Indicators of Reading Assessment	18
Table 2	Research Design.....	33
Table 3	Population of the Research	33
Table 4	The Indicators of Reading Comprehension Test of Pre- Test.....	37
Table 5	The Indicators of Reading Comprehension Test of Post-Test.....	37
Table 6	The Interpretation of Mean Score	44
Table 7	Score of pre-test in Experimental class	47
Table 8	Score of pre-test in Control class	48
Table 9	Score of post-test in Experimental class.....	49
Table 10	Score of post-test in Control class.....	50
Table 11	The Score of Experimental Class in Pre-test	51
Table 12	Frequency Distribution of Experimental Class (Pre-test).....	52
Table 13	The Score of Control Class in Pre-test	53
Table 14	Frequency Distribution of Students' Score.....	54
Table 15	The Score of Experimental Class in Post-test.....	55
Table 16	Frequency Distribution of Students' Score.....	56
Table 17	The Score of Control class in Post-test.....	57
Table 18	Frequency Distribution of Students' Score.....	58
Table 19	The Comparison Data of Experimental Class in Pre-test and Post- Test	60

Table 20 The Comparison Data of Control Class in Pre-test and Post-test 62

Table 21 Result of T-test from the Both Averages 66

LIST OF FIGURES

Figure	Page
Figure 1: Histogram the Result Score of Students' Reading Comprehension in Experimental Class (Pre-test).....	53
Figure 2: Histogram the Result Score of Students' Reading Comprehension in Control Class (Pre-test).....	55
Figure 3: Histogram the Result Score of Students' Reading Comprehension in Experimental Class (Post-test).....	57
Figure 4: Histogram the Result Score of Students' Reading Comprehension in Control Class (Post-test)	59
Figure 5: Histogram the Comparison Data of Students' Reading Comprehension in Pre-test and Post-test (Experimental Class).....	61
Figure 6: Histogram the Comparison Data of Students' Reading Comprehension in Pre-test and Post-test (Control Class).....	63
Figure 7: Histogram the Comparison Data of Students' Reading Comprehension in Experimental and Control Class (Pre-test)	64
Figure 8: Histogram the Comparison Data of Students' Reading Comprehension in Experimental and Control Class (Post-test).....	65

LIST OF APPENDIXES

- Appendix 1 : Lesson Plan of Experimental Class
- Appendix 2 : Lesson Plan of Control Class
- Appendix 3 : Learning Material for Experimental Class
- Appendix 4 : Learning Material for Control Class
- Appendix 5 : Instrument for Pre-Test
- Appendix 6 : Instrument for Post-Test
- Appendix 7 : Key answer of Pre-Test and Post-Test
- Appendix 8 : Validity of Pre-Test
- Appendix 9 : Calculation of Pre-Test Validity
- Appendix 10 : Table Validity of Pre-Test
- Appendix 11 : Validity of Post-Test
- Appendix 12 : Calculation of Post-Test Validity
- Appendix 13 : Table Validity of Post-Test
- Appendix 14 : Reliability of Pre-Test
- Appendix 15 : Reliability of Post-Test
- Appendix 16 : Score of Experimental Class and Control Class on Pre-Test
- Appendix 17 : Result of Normality Test in Pre-Test
- Appendix 18 : Homogeneity Test (Pre-Test)
- Appendix 19 : Score of Experimental Class and Control Class on Post-Test
- Appendix 20 : Result of Normality Test in Post Test
- Appendix 21 : Homogeneity Test (Post-Test)

Appendix 22 : T-test of the Both Averages in Pre-Test

Appendix 23 : T-test of the Both Averages in Post-Test

Appendix 24 : Documentation

CHAPTER I

INTRODUCTION

A. Background of the Problem

Reading is one of the four basics skills in language learning. Reading is also the most important skill for every language learner. Reading skills to be owned by every students in order to be able to comprehend the information from a text material. With reading, readers can get information, readers can develop their memories improvement, readers can improve their selves, readers can boost imagination and creativity, readers can connect their brain and readers can develop their knowledge. These important of reading will be explained in the following paragraphs.

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

Second, readers can develop their memory improvement. While reading a book or some information, the readers have to remember an assortment of characters, background, ambitions, history and nuances from the book or from the story. Reading is an activity that enhances our knowledge by making us use our brain to think and also until enhancing our intelligence. Reading can open the

doors to the new world, new ideas and new imagination and also our brain turn will develop our ability in thinking, memory and concentration.

Third, readers can improve their selves. Trough reading we understand the world more, understand more on a topic that interest. For example: how to build self confidence? to make a better planning before action, and how to memorize thing well. In other word we able to prepare appropriate plan activity.

Fourth, readers can boost imagination and creativity. Reading opens to a world of imagination, showing that nothing is impossible in this world. Books are beyond imagination. Creativity will boost someone to be innovative by being able to create a new object and unique.

Fifth, readers can connect their brain. While reading, they in full silence, when reading is connected to brain directly. In silence, the brain is clear and focuses, learn and grow. Therefore they feel and see from the point of view from the author about everything in life.

Finally, readers can develop their knowledge. Learning to read well is a key to gain knowledge. The readers can learn, add their knowledge and understand about some information when they read something.

Reading is very important, moreover for students. They must read for success their studies, but it stills becomes a problem in schools especially at SMA Negeri 5 Padangsidimpuan. They have some problems in reading. The first, they are lack of vocabularies and seldom to practice in reading. Second, reading activity is so bored and make them do not interest to study because they can't

understand the text. Then, students' reading comprehension is low. The last, the teacher never applies the technique in teaching reading comprehension.¹ The problems above will be explained in the following paragraph.

First, they are lack of vocabularies and seldom to practice in reading. Knowing the meaning of words in the text is the key to understand the text. So, the problem is the students don't master of the vocabularies. Second, reading activity is so bored. In doing the activity, students must enjoy the activity that makes them achieve to do the goal of activity. So, the problem is they can't enjoy in reading activity then they feel bored. Third, students' reading comprehension is low. Most of students still get 60.² Based on Minimal of Complete criteria (KKM), passing grade of senior high school is 75 for English subject. They have not achieved target of the passing grade. Last, the teacher never applies the technique in teaching reading comprehension. Teacher only command the students to read the text and answer the questions based on the text. Whereas applying the technique in teaching learning will make the learning more active and effective.

Based on the problem above, there are so many techniques that can be applied in teaching reading comprehension. The present research, researcher uses cooperative integrated reading and composition technique to teach reading. This

¹ *Private Interview*, Indah Puspita, recorded on October 3rd, 2017 in SMA Negeri 5 Padangsidempuan.

² *Private Interview*, Abdul Malik S.Pd. recorded on October 11th 2018 in SMA Negeri 5 Padangsidempuan.

technique is adaptable to most subject and grade level. Cooperative integrated reading and composition Technique is one of the type of cooperative learning by using small group that every group consist of 4-5 students heterogeneous.³ The students divide in a small group, make students easier in solving problem, because in groups the students can enjoy and share for giving idea what they are discussed.

Cooperative Integrated Reading and Composition (CIRC) can motivate students to encourage and help each other master skills presented by the teacher, an effective technique for teaching material and the students more active study, it makes a learning become fun and learning material to understand easily.

Cooperative integrated reading and composition technique that can be applied for all subjects and level class. It refers to Zainuddin.⁴ The Cooperative Integrated Reading and Composition (CIRC) is a comprehensive technique for teaching reading, writing and language arts in the upper elementary grades. From the explanation above, it can be seen that cooperative integrated reading and composition technique can be applied for all subjects such as writing, reading and all of students' level. So, if Cooperative Integrated Reading and Composition Technique can be applied for all subjects, it also has affect on students' reading comprehension.

³ Istarani, *58 Model Pembelajaran Inovatif* (Medan: Media Persada, 2012), p. 112

⁴ Zainuddin, "The Effect of Cooperative Integrated Reading and Composition Technique on Students' Reading Descriptive Text Achievement" *Education Journal*, vol. 8. No. 5, 2015 (<http://dx.doi.org/10.5539/elt.v8n5p11> accessed on 12 August 2018) p. 12

B. Identification of the Problem

Based on the background of problems above, there are some problems in students' reading comprehension at SMA N 5 at grade XI Padangsidimpuan :

1. The students are lack of vocabularies.
2. The students feel the reading activity is bored.
3. The students reading comprehension is low.
4. The teacher never applies the technique in teaching reading comprehension.

C. The Limitation of the Problem

The coverage of the variables state above is so large in the meter of materials, space and time that is difficult to explore all. Due to the limitation of the researcher in the aspect of ability, time and finance, this research must be limited.

Then, the researcher is only focused to low ability of the students in reading comprehension. It will be solved by choosing one technique. It is Cooperative Integrated Reading and Composition Technique.

D. The Formulation of the Problem

The formulations of the problem in this research are:

1. What is the result of students' reading comprehension before using Cooperative Integrated Reading and Composition (CIRC) technique at grade XI SMA N 5 Padangsidimpuan?
2. What is the result of students' reading comprehension after using Cooperative Integrated Reading and Composition (CIRC) technique at grade XI SMA N 5 Padangsidimpuan?

3. Is there any effect of Cooperative Integrated Reading and Composition (CIRC) technique on students' reading comprehension at grade XI SMA N 5 Padangsidempuan?

E. Research Objective

From the formulation of the problem above, the purpose of this research are:

1. To know the result of students' reading comprehension before using Cooperative Integrated Reading and Composition (CIRC) technique on students' reading comprehension at grade SMA N 5 Padangsidempuan.
2. To know the result of students' reading comprehension after using Cooperative Integrated Reading and Composition (CIRC) technique on students' reading comprehension at grade SMA N 5 Padangsidempuan.
3. To examine whether there is or there is not any effect of using Cooperative Integrated Reading and Composition (CIRC) technique on students' reading comprehension at grade SMA N 5 Padangsidempuan.

F. The Significances of the Research

There are some significances of this research that illustrated in the following:

1. This research will give students motivation to use CIRC. So that their learning objectives can be got optimally.
2. The research can be as a source of teacher in learning English and will help head master to guide and give instruction to teacher on organizing the learning process to increase the learning quality.

3. This research can be as a related finding to other research to their reference.
4. This research can be as a rules and regulation to get college degree.

G. The Definition of the Operational Variable

1. Cooperative Integrated Reading and Composition Technique

Cooperative integrated reading and composition Technique is one of the Integrated Cooperative learning technique of reading and writing, whereas the students are divided into several group to improve their understanding of reading and writing.

2. Students' Reading Comprehension

Students' reading comprehension is a process in which the students try to understand the meaning of their reading text.

H. The Outline of the Thesis

The systematic of this research was divided in to five chapters. Each chapter consists of many sub chapters with detail as follow:

Chapter one discussed about introduction. It consisted of background of the problem, identification of the problem, limitation of the research, formulation of the problem, objective of the research, significant of the research and the definition of the operational variables.

Chapter two was about theoretical description. It explained about reading mastery, teaching method, CIRC and conceptual framework.

Chapter three was about methodology of research. It consisted of place and time of the research, method of the research, population and sample, the

instrument of collecting data, technique of collecting data and technique of analyzing data.

Chapter four was about the result of the research and data analyzing. It consisted of description of data, discussion of the research and limitation of the research.

Chapter five, it consisted of conclusion about the result of this research and suggestions that were given by the researcher.

CHAPTER II

THEORETICAL DESCRIPTION

A. Theoretical Description

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

1. Reading Comprehension

a. Definition of Reading Comprehension

Reading comprehension is the ability to process text and to integrate with what the readers already knows. It is also a process in which the students try to understand the meaning of their reading text. So, the readers get good information from what they have read.

Reading is a fluent process of readers combining information from a text and their own background knowledge to build meaning. The reader's background knowledge integrates with the text to create the meaning.¹ Thus, reading means the process involving and getting meaning by integrates the text by using background knowledge.

Douglas Brown stated that “reading is a process of negotiating meaning; the reader bring to the text a set of schemata for understanding it and intake the product of that interaction.” In addition reading is also a process done and used by the readers to obtain messages to be conveyed

¹ David Nunan, *Practical English Language Teaching* (New York: Mc Graw Hill, 2003), P.68

by the author through the media words or language written.² It means getting message from the text that that we have read.

The goal of reading is comprehend. Comprehension comes from word “comprehend” which added by “ion”. The meaning of comprehend is ability to understand.³ Comprehension is making sense of what we read.⁴ It means making meaning or definition from the text that we have read.

There are some levels of comprehension, as follows:

- 1) Literal level: At the literal level the basic facts are understood.
- 2) Inferential level: At the inferential level the reader is able to go beyond what is written on the page and add meaning or draw conclusions.
- 3) Critical level: At the critical level the reader assesses the good sense of what he or she is reading, its clarity, accuracy and any apparent exaggeration or bias.
- 4) Creative level: At the creative level the reader can take information or ideas from what has been read and develop new ideas from them. The creative level stimulates the reader to new and original thinking.⁵

Reading comprehension is highest process from reading activity.

Reading comprehension is the process of making meaning from text. The goal, therefore, is to gain an overall understanding of what is described in the text rather than to obtain meaning from isolated words or sentences.⁶

² Henry Guntur Tarigan, *Membaca Sebagai Suatu Keterampilan Berbahasa* (Bandung: Angkasa, 2005), p. 7

³ David Nunan, *Practical English*, P.311

⁴ Andie Cunningham and Ruth Shagoury, *Starting with Comprehension: Reading Strategies for the Youngest Learners* (USA: Stenhouse, 2005), p. 11

⁵ Peter Westwood, *Reading and Learning Difficulties: Approaches to Teaching and Assessment* (Australia: Brown Prior Anderson (BPA), 2001), p. 21-22

⁶ G. Woolley *Reading Comprehension: Assisting Children with Learning Difficulties* (USA: MC Grow Hill, 1997), p. 115

Reading comprehension is complex processes which take part of useful of good and poor ability.⁷

Reading comprehension is primarily matter developing appropriate, efficient comprehend strategies.⁸ Caroline stated that “reading comprehension refers to reading for meaning, understanding and entertainment”.⁹ Further, reading comprehension is include understand simple definition, simple significances, evaluated the content of reading and speed reading flexible¹⁰ Therefore it can be concluded that reading comprehension is which complex process of a reading activity which the aim to get information from reading text.

The conclusion from all of explanation above, that reading comprehension is ability to process the text, understand the intent of the text and integrate with what the reader knows. The ability of individuals to understand text is influenced by their skills and their ability to process information.

b. The Purpose of Reading Comprehension

The purpose of reading is to evaluate and to conclude the important information from the text and to comprehend the author’s message. The

⁷ Gordon Wainwright, *Speed Reading Better Recalling* (Jakarta: Gramedia, 2007), p. 42

⁸ H Douglas Brown, *Teaching by Principle an Interactive Approach to Language Paedagogy* (New Jersey: Prentice Hall, Inc Englewoods Cliffs, 1994), p. 291

⁹ Caroline T Linse and David Nunan, *Practical English Language Teaching: Young Learners* (New York: McGraw Hill Companies 2005), p. 71

¹⁰ Minto Rahayu, *Bahasa Indonesia di Perguruan Tinggi* (Jakarta: Grasindo, 2007), p. 112-

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

1. Reading for details or facts: it means the readers have to find the detail information from what they read and to know about the text fact or not.
2. Reading for main ideas: it means the readers have to know the main idea of the text then they know the points of what they read from text.
3. Reading for sequence or organization: it means the reader have to know the sequence of the text, it can be such as the events sequence or the organization of the text.
4. Reading for inference: it means the readers have to know the interference of what they read, so it can be said they understand about what they read.
5. Reading to classify: it means the readers have to know how to classify the text, it can be classified the important and not important from a text.
6. Reading to evaluate: it means from reading the readers can know how far their ability in reading.

7. Reading to compare or contrast: it means the readers can compare one text to another text, to build their knowledge.¹¹

It can be concluded that reading purposes are to get some information, messages and include content and meaning of the text based on their purposes in reading.

c. Types of Reading Comprehension

The reading comprehension has types. According to brown the types of reading comprehension can be classified into four activities:

1. Perspective reading

Perspective reading tasks involve attending to the components of larger stretches of discourse: letter, words, punctuation and other grapheme symbols.

2. Selective

This category is largely an artifact of assessment formats. In order to ascertain one's reading recognition of lexical, grammatical, or discourse features of language within a very short stretch of language, certain typical tasks are used: picture-cued tasks, matching, true-false, multiple choice, etc.

3. Interactive

Included among interactive reading types are stretches of language several paragraphs to one page or more in which the reader must, in a psycholinguistics sense, interact with the text.

4. Extensive

Extensive reading is applies to texts of more than a page, up and including professional articles, essays, technical reports, short stories and books.¹²

From the types of reading above we can use which one we feel interest to use and can improve our reading comprehension.

¹¹ Henry Guntur Tarigan, *Membaca Sebagai.....*, p. 9-10

¹² H Douglas Brown, *Language Assessment Principles & Classroom Practice* (San Francisco, California, 2003), p.189

d. Principles of Reading

Principles of reading can be said as a reading process. The principles of reading can be divided into three categories: bottom-up models, top-down models, and interactive models.¹³

1. *Bottom-up* refer to the decoding of individual linguistic units on the printed page, working one's way up from smaller to larger units to obtain meaning and to modify one's prior knowledge.¹⁴ *Bottom-up models* typically consist of lower-level reading processes. Students start with the fundamental basic of letter and sound recognition, which in turns allow morpheme recognition followed by word recognition, building up to the identification of grammatical structures, sentences, and longer texts.¹⁵ It means, working from the smaller to larger units, to get the meaning of the text.
2. *Top down* begin with the reader's hypotheses and predictions about the text and his or her attempts to confirm them by working down the smallest unit of the printed text.¹⁶ The readers use background knowledge, make predictions, and search the text to confirm or reject the predictions that are made. A passage can thus be understood even

¹³ David Nunan, *Practical English.....*, p.70.

¹⁴ J. Michael O' Malley & Lorraine Valdez Pierce, *Authentic Assessment for English Language Learners* (USA: Addison-Wesley Publishing Company, 1996), p. 94

¹⁵ David Nunan, *Practical English.....*, p. 70

¹⁶ J. Michael O' malley & Lorraine Valdez Pierce, *Authentic Assessment for.....*, p. 94

if all the individual words are not understood.¹⁷ It means, working from making prediction about the text then confirming it with the text by working down the smallest unit of the text.

3. *Interactive* combine elements of both bottom-up and top-down models assuming “that a pattern is synthesized based on information provided simultaneously from several knowledge sources”.¹⁸ It means, combining of bottom-up and top-down in understanding the text.

So, when the readers read one of the third processes of reading above will be applied to get the point of their reading. So, a good reading teacher should apply above principles in teaching reading to make his/her students easier to understand and comprehend the passage.

Moreover, there are some principles strategies in reading comprehension stated by Douglas Brown as follows:

- a) Identify your purpose in reading text.
- b) Applying spelling rules and conventions for bottom-up decoding.
- c) Use lexical analysis (prefixes, roots, suffixes, etc.) to determine meaning.
- d) Guess at meaning (of words, idiom, etc.) when you aren't certain.
- e) Skim the text for the gist and for main ideas.
- f) Scan the text for specific information (names, dates, key words).
- g) Use silent reading techniques for rapid processing.
- h) Use marginal notes, outlines, chart, or semantic map for understanding and retaining information.
- i) Distinguishing between literal and implied meaning.
- j) Capitalize on discourse markers to process relationship.¹⁹

¹⁷ David Nunan, *Practical English*.....p.71.

¹⁸ *Ibid.*,p. 72.

¹⁹ H Douglas Brown, *Language Assessment* (San Fransisco: Longman, 2004), p. 188.

Therefore an English teacher can apply these principles in teaching reading comprehension. Therefore, the researcher will consider these principles in teaching reading comprehension and apply it.

e. Reading Assessment

Assessment is a tool to measure how far the students ability and comprehension of the material.²⁰ In addition, Caroline stated that “Assessment is the gathering of information for a specific purpose.”²¹ Routman states that in order for reading assessment teachers should consider the following:

- 1) Be thoroughly familiar with developmental learning process and curriculum.
- 2) Articulate a philosophy of assessment and evaluation.
- 3) Know about and experience collecting, recording, interpreting and analyzing multiple sources data.
- 4) Be flexible and willing to try out multiple assessment procedures.
- 5) Be committed to understanding and implementing an approach to evaluate that informs students and directs instruction.²²

Based on explanation above teachers should consider it to make students' evaluation more useful.

Moreover, there are some basic points to be remembered in the assessment of reading of English language learners, they include:

- 1) Activities for assessing reading should be based on activities for teaching reading.

²⁰ J. Michael O' Malley and Lorraine Valdez Pierce, *Authentic Assessment for.....*, p. 98

²¹ Caroline T. Linse and David Nunan, *Practical English Language Teaching.....*, p. 138

²² *Ibid.*,p. 97-98.

- 2) Assessment of reading, like instruction, takes planning, time, and experience.
- 3) Assessment of reading should include both decoding skills and reading comprehension strategies.
- 4) Assessment of reading should include students' attitudes and feelings toward reading.
- 5) Assessment of reading should hold students accountable for how they use time in class for reading.
- 6) Assessment of reading should be conducted regularly and be ongoing.
- 7) Students should be actively involved in their own assessment, whether it will be in setting criteria, engaging in self-assessment, or evaluating peers.
- 8) Teacher observations of reading should be recorded systematically.
- 9) Assessment of reading should consist of multiple assessments for each student in order to monitor students' progress.
- 10) Result of reading assessment should be used to inform students, parents, and teachers of needed changes in student performance and in instruction.²³

Based on explanation above, it can be concluded that in assessing students' reading comprehension, a reading teacher should remember and bend on the tenth points, so do researcher who wants to research about the students' reading.

In addition, there are some indicators in assessing students' reading,²⁴ as follow:

²³ J. Michael O' Malley & Lorraine Valdez Pierce, *Authentic Assessment for.....*, p. 132-133.

²⁴ Silabus, "Bahasa Inggris-Wajib SMA Kelas XI", Kurikulum 2013, retrieved in www.jagoanbahasainggris.com Friday, March 30, 2018.

Table 1
Indicators of Reading Assessment

No	Indicators of Reading Assessment
1	Able to identify the main idea of the text
2	Able to identify the detail information of the text
3	Able to identify the specific information of the text
4	Able to get the meaning of the text

Based on indicators of reading assessment above, the students should be able to identify the main idea of the text, the specific information of the text (it means the special and distinctive from the text), detail information of the text (small parts or very detailed parts from the text) and able to get the meaning of the text in reading (the meaning can be word or sentence in the text). These indicators will be an escort for a teacher in assessing students' reading comprehension, so do researcher who wants to research in a reading comprehension class.

2. Cooperative Integrated Reading and Composition Technique

a. Definition of Cooperative Integrated Reading and Composition

CIRC is an integrated cooperative learning technique of reading and writing, whereas the students are divided into some groups to improve their understanding in reading and writing.

CIRC is a comprehensive program for teaching reading and writing in the upper elementary school and middle grades.²⁵ CIRC technique is developed to support traditionally used “skill-based reading groups” approach. Firstly, reading groups are established in the classroom. Next, students are paired off within the groups. When the teacher works with a reading group, couples try to teach each other meaningful reading and writing skills by using reciprocal learning technique. They help each other in performing basic skill-building activities.²⁶ It means that CIRC technique is a cooperative learning technique that design to develop reading, writing and other language skills trough heterogeneous grouping or homogeneous grouping. Suyitno Amin states;

CIRC diterapkan dalam pembelajaran bahasa. Dalam kelompok kecil, para siswa diberi suatu teks atau bacaan (cerita atau novel), kemudian siswa latihan membaca, memahami ide pokok, saling merevisi, dan menulis ikhtiar cerita, atau memberikan tanggapan terhadap isi cerita, atau mempersiapkan tugas tertentu dari guru.²⁷

It means CIRC technique is apply in teaching language of small group with some activities such as reading a text or novel, then training to read and to understand about the text, or giving idea from the text or preparing to do the specific task from the teacher. It means that CIRC

²⁵ Robert E. Slavin, *Cooperative Learning: Theory, Research, and Practice* (USA: Singapore, 1994), p. 7

²⁶ Erhan Durukan, Effect of Cooperative Integrated Reading and Composition (CIRC), Technique on Reading-Writing Skills, *Academic Journal*, vol. 6 no. 1, 2011 (<http://www.academicjournals.org/ERR>. Accessed on 4 April 2018) p.103

²⁷ Suyitno Amin, *Model Pembelajaran Kooperatif* (Jakarta: Nusa Media, 2015) p. 18

technique is a simple cooperative learning technique which design in grouping.

In CIRC reading, students are taught in reading group and then return to mixed ability teams to work on a series of cooperative activities, including partner reading, making predictions, identification of characters, settings, problem and problem solutions, summarization, vocabulary, spelling and reading comprehension exercises. CIRC provides a structure to help teachers and students succeed in helping all students become effective reader.²⁸ CIRC is derived from cooperative learning which facilities the students to comprehend the reading text given more easily.²⁹ It means CIRC technique cooperative learning that can make teaching learning reading becomes easy and can helping students become effective reader.

This technique is good to use in teaching, especially in teaching reading skill. Also if the teacher wants the students to explore and understand in specific and detail of what material will be taught to students.

²⁸ Madhu Gupta & Jyoti Ahuja, "Cooperative Integrated Reading and Composition (CIRC): Impact on Reading Comprehension Achievement in English Among Seventh Graders" *Impact Journal*, vol.2 no. 5, 2014 (www.impactjournal.us accessed on 12 August 2018)p. 39

²⁹ Zainuddin, "The Effect of Cooperative Integrated Reading and Composition Technique on Students' Reading Descriptive Text Achievement" *Education Journal*, vol. 8. No. 5, 2015 (<http://dx.doi.org/10.5539/elt.v8n5p11> accessed on 12 August 2018) p. 12

b. The Purposes of Cooperative Integrated Reading and Composition

There are some purposes of CIRC technique, they are:

1. CIRC technique is very suitable to increase the students' ability in problem solving. They can give their opinion freely of the material.
2. While teaching and learning process the students are more active than teacher.
3. This method gives the students a chance to know and study how is the way to learn in teamwork, what they should do what is the problem that can be arise.
4. This method is teaching the students become communicative and the opinion that they say it is come from their mind.
5. Increase the achievement of student after learning this method.³⁰

This technique is designed to accommodate varying student ability level, either through heterogeneous groupings or homogenous grouping.³¹

According to Slavin the purposes of CIRC are as follow:

1. Oral Reading
Increase students' opportunities to read aloud and accept feedback from reading activities, by making the students reading for his teammates and by training them about how to respond to students' reading activities.
2. Reading Comprehension skill
Using of cooperative teams to help students learn skills understand widely applicable readings.

³⁰ Robert E. Slavin, *Cooperative Learning Teori, Riset dan Praktik* (Bandung: Nusa Media, 2015) p. 57

³¹ Miftahul Huda, *Cooperative Learning Metode, Teknik , Struktur dan Model Terapan* (Yogyakarta: Pustaka Pelajar, 2013) p. 126

3. Writing and Language Art

CIRC development of writing and language arts is designed to implement, and evaluate the approach of the writing process to the many writing and speaking arts lessons utilizing the presence of a classmate.³²

It means, all of purposes above are the key to determine what will be done in applying CIRC technique.

c. Procedure of Cooperative Integrated Reading and Composition

In teaching using CIRC method to be systematic and structured, it must follow the procedures, as procedures below:

1. Make some groups that consist of 4students heterogeneously.
2. Teacher gives the text/clipping based on the material.
3. 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
4. Presentation/ read the result of discussion.
5. Closing.³³

According to Robert E. Slavin there are many procedures in teaching CIRC Method, as follows:

1. The teacher divided the students into some groups that consist of 4-5 students.
2. The students move to their groups.
3. The teacher gives the material for the students.
4. The students work together to read and understand the material.
5. The teacher give the quiz for the students
6. The students answer the quiz with their teams.
7. The teacher collects the quiz.³⁴

³² Robert E. Slavin, *Cooperative Learning Teori.....*, p. 105-106

³³ Istarani, *58 Model Pembelajaran Inovatif* (Medan: Media persada, 2012), p. 113

³⁴ Robert E. Slavin, *Cooperative Learning: Theory.....*, p. 59

From the procedures above, it can be concluded that if the teacher uses this method in teaching, students feel enjoy or fun because their friends in a group is determined heterogeneously and every members of groups have the same chance to be successes and also there is no competition between others groups. It is also can improve students' teamwork, because in the learning process students are given the opportunity to discuss with their friends in a group.

d. The Main Principle of Cooperative Integrated Reading and Composition

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

1. Team is making heterogeneous grouping that consist of 4-5 students.
2. 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.
3. 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.
4. Team study is the learning step that should be done by the group and teacher give a helping to the group.
5. Team scorer and team recognition is the step to give the score to the result of group and recognition to the success group.

6. Teaching group give the material as soon as from the teacher before doing a group task.³⁵

So, all of the principles above are the base rule that have to do in applying CIRC technique.

3. Report Text

a. Definition of Report Text

Report text is a kind of factual text. Report text is a text contain scientific information and knowledge improving, it is essential text to increase readers' knowledge.³⁶ It means that report text is a text that tells readers about factual information of something or particular thing.

Report text is a type of document written by someone or group of people to announce the result of an investigator. The information given in a report text is very general information.³⁷ It means that report text is a text that that tells readers about information in general.

The conclusion, that report text is a type of a text that announces something. The information provided in the report text is very general.

³⁵ Agus Suprijono, *Cooperative Learning Teori dan Aplikasi PAIKEM* (Yogyakarta: Pustaka Pelajar, 2010) p. 4

³⁶ Pardiyono, *Pasti Bisa, Teaching Genre-Based Writing* (Yogyakarta: Penerbit ANDI, 2007), P. 271.

³⁷ Eli Marseliana, Report Text, Definition, Function, Structure, Features, Differences and Examples, <http://elimarseliana.blogspot.com/2015/07/text-report-text-defintion-of-report.html?m=1>. Retrieved on February 13,2019 at 21.57.

b. The Generic Structures

Text elements of report text consist of title, general statement or general classification, and description.

- 1) The title is usually in phrase form, such as noun phrase. It indicates topic of report. It is about things in the world; living things like plants and animals, non-living things like galaxy, satellite, economy and so on.
- 2) General description or classification contains certain statement about topic belong to the title. It can be one sentence or more which explain a characteristic due to the topic. It means a statement to introduce the topic of report.
- 3) Description explains what has been shown in the title and the general statement. It means it provides details of topic such as physical appearance, behavior, landforms and uses.³⁸

The generic structures above must be in every writings about the report text.

c. The Language Features

Every text has its own characteristic of language. The grammar pattern commonly use in report text can be classified as follow:

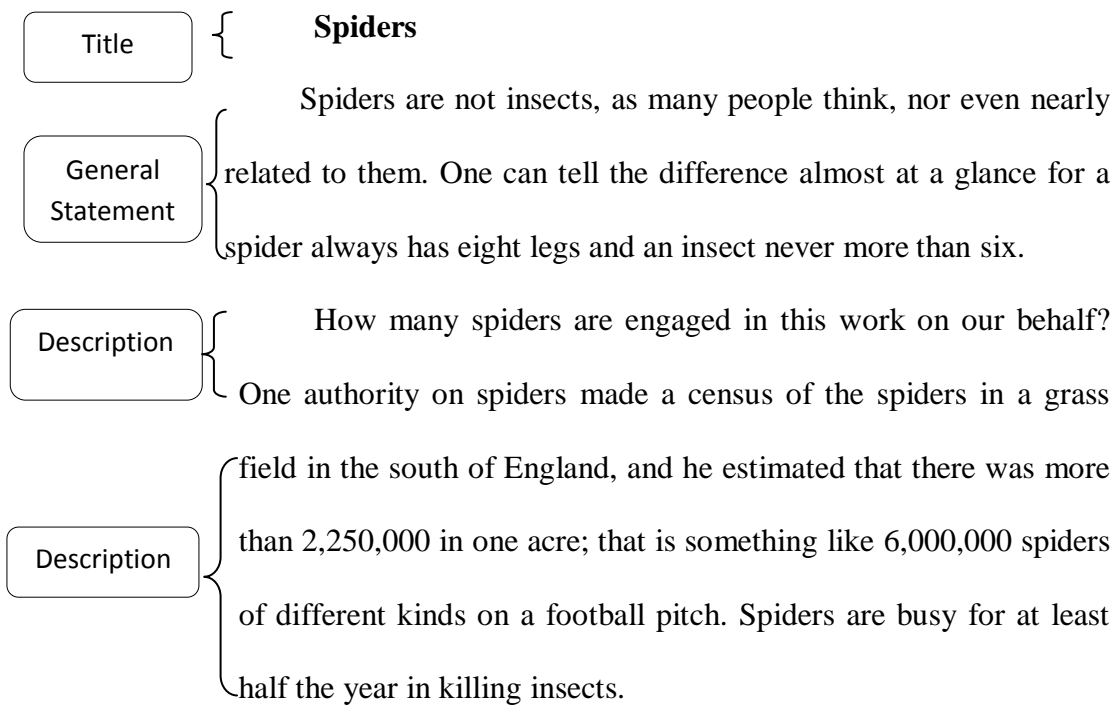
- 1) Using present form
- 2) Using declarative sentences

³⁸ Pardiyo, *Pasti Bisa, Teaching Genre*,p. 275-276.

3) Using conjunctions.³⁹

According to Sue Plamer there are many language features in writing report text, as follows:

- 1) Present Tense
- 2) Usually general nouns and pronouns
- 3) Third person writing
- 4) Factual writing, often involving technical words and phrases.⁴⁰

d. The Example of Report Text

³⁹ *Ibid.*, p. 275.

⁴⁰ Sue Palmer, *How to Teach English Across the Curriculum Ages 6-8*, Second Edition (USA: Routledge, 2011), p. 48

Description

It is impossible to make more than the wildest guess at how many they kill, but they are hungry creatures which not content with only three meals a day. It has been estimated that the weight of all the insects destroy by spider in Britain in one year would be greater than the total weight of all the human beings in the country.

B. Review of Related Findings

Many researchers are talking about students' reading comprehension and there are some researchers that have been used Cooperative Integrated Reading and Composition Technique. Related to this research, some researchers have been done as follow:

First, thesis by Pausiah, the concluding of her research, there is the effect of reciprocal teaching strategy to students' reading comprehension, where the mean score is 74.96 and control class is 73.65, with t_{count} is higher than t_{table} ($2.18 > 1.67$). So, the implication of reciprocal strategy is better than conventional strategy.⁴¹

Second,thesis by Yuli Anita Pakpahan, the finding shows that the students' reading comprehension who were taught by QAR strategy was 85.33 higher than those who were taught by using KWL strategy was 77.56 with $t_{\text{count}} =$

⁴¹ Pausiah "The Effect of Reciprocal Teaching Strategy to Students' Reading Comprehension at Grade VII SMP Negeri 5 Padangsidimpunan" (*Unpublished Thesis*), (Padangsidimpunan: IAIN Padang Sidimpunan, 2014).

7.837 > $t_{table} = 1.67$. In conclusion, the students who are taught by QAR strategy got higher scores than students who are taught by QAR strategy.⁴²

Third, thesis by Lonni Nur Iffah Nasution, the concluding of her research, there is the effect of CIRC strategy on reading comprehension, where the mean score of experimental class is 80.95 and control class is 75.85 with t_{count} higher than t_{table} ($6.98 > 2.021$).⁴³ So, the application of CIRC strategy is better, effective and efficient than conventional strategy.

Fourth, thesis by Yuli Marlina, the concluding of her research, there is significant effect of cooperative integrated reading and composition (CIRC) toward reading comprehension in narrative text. It can be seen from the gain score of experimental class that was taught by using Cooperative Integrated Reading and Composition technique was higher (72.20) than of control class (63.60).⁴⁴

Next, thesis by Niken Eka Pratiwi, the concluding of her research, that Cooperative Integrated Reading and Composition technique gave a significant effect on reading comprehension achievement. It can be seen from the test scores that the statistical value of the t-test was higher than that of the value of t-table

⁴² Yuli Anita Pakpahan "The Effect of Implementing KWL and QAR Strategies on Students' Reading Comprehension with Different Motivation", retrieved in <http://digilib.unila.ac.id>, on Tuesday 4 April, 2018.

⁴³ Lonni Nur Iffah Nasution, The Effect of Cooperative Integrated Reading Composition (CIRC) Strategy on Students' Reading Comprehension at XI Grade of MAN 1 Padangsidimpuan, (*Unpublished thesis*), (Padangsidimpuan: IAIN Padangsidimpuan, 2015), p. 63.

⁴⁴ Yuli Marlina, The Effectiveness of Cooperative Integrated Reading and Composition (CIRC) Technique on Students' Reading Comprehension in Narrative Text of the Second Year Students at Islamic Senior High School Al-Muttaqien Bunga Raya Siak Regency, (Pekanbaru: UIN SUSKA Riau, 2013), p. 62, retrieved in http://repository.uin-suska.ac.id/10050/1/2013_2013794PBI.pdf on Tuesday, December 4, 2018.

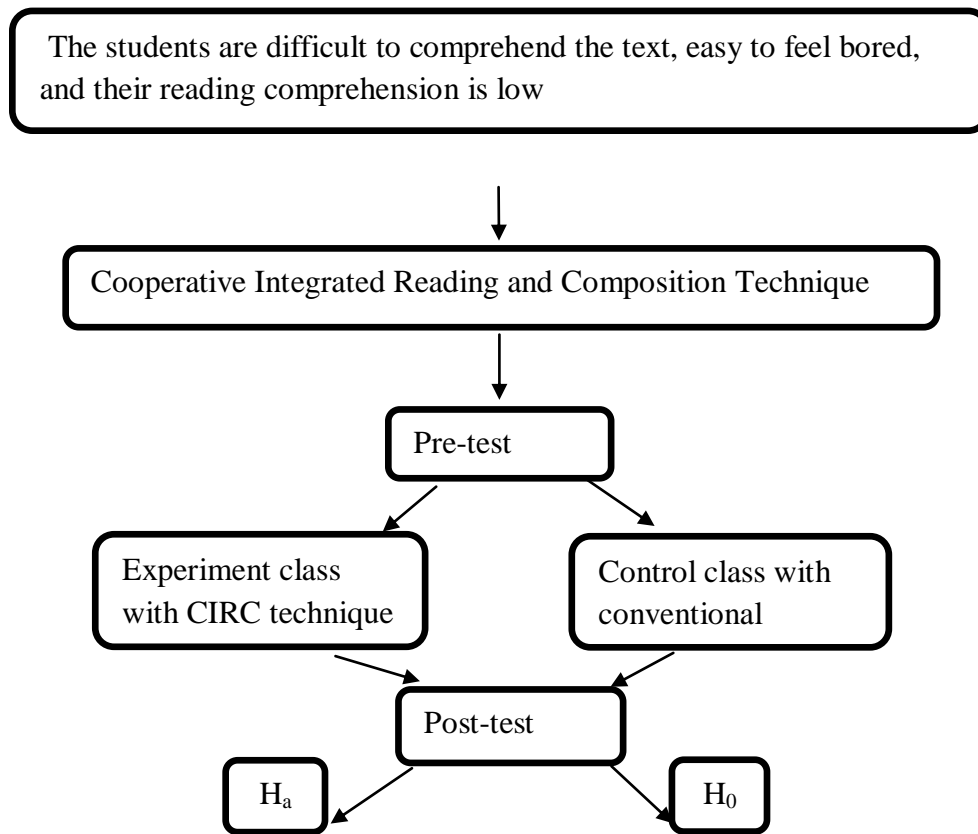
with significant level of 5% ($2.797 > 2.064$).⁴⁵ It meant that the Cooperative Integrated Reading and Composition technique suitable to teach students' reading comprehension.

The differences between this research with the related findings above was the technique, the text and the population. It was same in skill, it was reading skill. Based on the description above, the researcher hopes the Cooperative Integrated Reading and Composition technique can increase the students' reading comprehension and complete the previous research.

C. Conceptual Framework

Reading comprehension is one of skill is very important. Reading comprehension can help students to understand every material, especially in English material. Method is also important term. By using cooperative integrated reading and composition will make students easier to get information from the text. They will be divided into some groups, so that they can share their knowledge about the text each other. Thus the researcher assumes that with using of good method, students can understand about the text easily and quickly. So the researcher conducts a research. Based on the framework bellow:

⁴⁵ Niken Eka Pratiwi, The Effectiveness of Cooperative Integrated Reading and Composition (CIRC) Strategy to the Students' Reading Comprehension Achievement in Descriptive Text to the Tenth Grade Students' At Ma Hm Tribakti Kediri in Academic Year 2014/2015, (Kediri: Universitas Nusantara, 2015), p. 41 retrieved in http://simki.unpkediri.ac.id/mahasiswa/file_artikel/2015/11.1.01.08.0139.pdf on Tuesday, December 4, 2018.



D. Hypotheses

Hypotheses are determined based on the formulation. It is the tentative answer for the research until get the right results of the research.⁴⁶ Hypotheses is not a final answer, it still needs a test. A hypotheses is accepted if the result is suitable with the hypotheses while it is rejected if the result is lose from the hypotheses. So that it can be said that hypotheses is provisional answer of prediction in a research, the hypotheses of this research were:

⁴⁶ S. Nasution, *Metode Research* (Jakarta: Bumi Aksara, 2003) p. 38

1. H_a : There is the effect of Cooperative Integrated Reading and Composition technique on students' reading comprehension at grade XI SMA Negeri 5 Padangsidempuan.
2. H_0 : There is no effect of Integrated Reading and Composition technique on students' reading comprehension at grade XI SMA Negeri 5 Padangsidempuan

CHAPTER III

METHODOLOGY OF THE RESEARCH

A. The Place and Schedule of the Research

The location of this research was done at SMA Negeri 5 Padangsidempuan. It is located at Melati street No. 90 Padangsidempuan of North Sumatera. The subject of this research was the second grade of students in SMA Negeri 5 Padangsidempuan. The process of the research had been done from November 2017 up to January 2019.

B. The Research Design

This research design used experimental research design. Experimental research seeks to determine if a specific treatment influences an outcome. This impact is assessed by providing a specific treatment to one group and with holding it from another and then determining how both groups scored on an outcome.

The researcher used two classes, as an experiment class and as a control class. The experimental class taught with CIRC Technique, as a treatment. Meanwhile the control class taught with using conventional strategy without treatment. It can be seen from the table.

Table 2
Table of Design Treatment

Class		Treatment	
Experiment class	Pre-test	Teaching report text by using CIRC technique	Post-test
Control class	Pre-test	Teaching report text by using conventional technique	Post-test

C. The Population and Sample

1. Population

Population is area generalization that has been determined by researcher to become object or subject of the research. The population of this research was all of the second students of SMA N 5 Padangsidimpuan that consist of seven classes. It can be seen in the following table.

Table 3
Population of the Research

No	Class	Students
1.	XI IPA 1	26
2.	XI IPA 2	28
3.	XI IPA 3	30
4.	XI IPA 4	30
5.	XI IPA 5	30
6.	XI IPS 1	26
7.	XI IPS 2	29
TOTAL		199

2. Sample

Sample is taken from the population. Sample is portion of the population. So, sample in this research is the portion of the population as a focus of the research.

In this research, the researcher was chosen two classes as a sample. They were divided into experimental class and control class. The researcher used random sampling to take the sample. Random sampling is a random or indiscriminate sampling. In a random sampling, all individuals either individually or jointly are given equal opportunity to be selected as members of the research sample.¹ After that, the researcher used normality and homogeneity test.

Normality test is to know whether the data of research is normal or not. There are some ways to test normality test of data. In this research, the researcher used normality test with using *Chi-Square* formula, as follow:²

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

Where:

x^2 = Chi-Square

f = Frequency is gotten from the sample/result of observation (questioner).

¹ Sutrisno Hadi, *Metodologi Reseach* (Yogyakarta: Andi Offset, 2004) P. 75

² Anas Sudijono, *Pengantar Statistik Pendidikan* (Jakarta: PT Raja Grafindo Persada 2005),

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

The result of normality test for experimental in Pre-test x_{count} was 1.493 and x_{table} was 11.070. The for control class in Pre-test was x_{count} was 6.223 and x_{table} was 11.070. It meant that experimental and control class in Pre-test were distribute normal. It can be seen in appendix 17

The result of normality test for experimental in Post-test x_{count} was 5.087 and x_{table} was 11.070. The for control class in Post-test was x_{count} was 6.710 and x_{table} was 11.070. It meant that experimental and control class in Post-test were distribute normal. It can be seen in appendix 20.

Homogeneity test is used to know whether control class and experimental class have the same variant or not. If both classes are same, it can be called homogenous. To find the instrument of homogeneity, the researcher used *Harley test*. The formula is as follow:³

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

From homogeneity test that experimental class (IPA 3) and control class (IPA 4) were distributed homogeneous in Pre-test. Whereas the f_{count} 1.21 and f_{table} 4.18. it meant f_{count} was smaller than f_{table} . It can be seen in appendix 18.

³ Agus Irianto, *Statistik Konsep Dasar dan Aplikasinya* Padang: P2LPTK Departemen Pendidikan Nasional. 2003, p. 276

From homogeneity test that experimental class (IPA 3) and control class (IPA 4) were distributed homogeneous in Post-test. Whereas the f_{count} 1.13 and f_{table} 4.18. it meant f_{count} was smaller than f_{table} . It can be seen in appendix 21.

D. The Instrument of Collecting Data

The researcher used a test as an instrument. Test is a way to do a measurement in task form toward a group of person.⁴ Test is done based on the assumption that human have the differences in ability, personality, and behavior and it can be measured by appropriate way.⁵ The kind of the test was Multiple Choice. Cryil stated a Multiple-Choice Questions is the test item usually set out in such a way that the candidate is required to select the answer from a number of given options, only one of which is correct.⁶ Multiple choice that was consisted of four options a, b, c and d.

The way to make the test based on the indicators. From explanation in chapter II the indicator of reading comprehension has four indicators. The indicators were students able to identify the main idea of the text, able to identify the detail information of the text, able to identify the specific information of the text and able to get the meaning of the text.

⁴ Syukur Kholil, *Metologi Penelitian Komunikasi* (Bandung: Cipta Pustaka Media, 2006) P. 104-105

⁵ Ibnu Hadjar, *Dasar-Dasar Metologi Penelitian Kuantitatif dalam Pendidikan* (Jakarta: Raja Grafindo Persada, 1999) p. 173

⁶ Agus Irianto, *Statistik Konsep Dasar dan Aplikasinya.....*, p. 43

Table 4
The indicators of Reading Comprehension Test of Pre-test

No	Indicators	Item	Number of item	Score	Total score
1.	Able to identify the main idea of the text	6	3, 7, 9, 15, 19, 22	5	30
2.	Able to identify the detail information of the text	5	1, 4, 8, 10, 12, 13, 17, 20	5	25
3.	Able to identify the specific information of the text	5	5, 6, 16, 21, 24	5	25
4.	Able to get the meaning of the text	4	2, 14, 23, 25	5	20
Total		20			100

Table 5
The indicators of Reading Comprehension Test of Post-test

No	Indicators	Item	Number of item	Score	Total score
1.	Able to identify the main idea of the text	6	1, 4, 10, 13, 20, 25	5	30
2.	Able to identify the detail information of the text	5	5, 11, 14, 17, 19, 21, 23, 24	5	25
3.	Able to identify the specific information of the text	6	2, 6, 7, 8, 12, 15, 16, 22	5	30
4.	Able to get the meaning of the text	3	3, 9, 18	5	15
Total		20			100

E. The Validity and Reliability Instrument

1. Validity of Instrument

Validity is the most important characteristic a test or measuring instrument can possess. It is concerned with the appropriateness made from test scores. When we test, we test from the purposes.⁷

To get the validity of test, the formula of r point biserial can be used as follow:⁸

$$r_{\text{pbi}} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

Where:

r_{pbi} : Coefficient item validity

M_p : Mean score of the total score of the students answer correctly

M_t : Mean score of the total score that achieved success by member of the test

SD_t : Standard deviation of the total score

P : presentation of the right answer of the item tested validity

Q : presentation of the wrong answer of the item tested validity

The result from instrument validity in Pre-test was 20 items from 25 items. Then there was 5 items was not valid. It can be seen in appendix 10.

The result from instrument validity in Post-test was 20 items from 25 items. Then there was 5 items was not valid. It can be seen in appendix 13.

⁷ L.R Gay and Peter Airasian, *Educational Research: Competencies for Analysis and Application* (America: Prentice Hall, 2000), p. 161

⁸ Hartono, *Statistik Untuk Penelitian*, (Yogyakarta: Pustaka Pelajar, 2004), p. 113.

2. Reliability of Instrument

Reliability is the degree to which a test consistently measures whatever it measures. Reliability is expressed numerically, usually as a coefficient ranging from 0.0 to 1.0; a high coefficient indicates high reliability.⁹ An instrument of the research must be reliable. A reliable is consistent and dependable.¹⁰

Reliability of an instrument can be found by using K-R. 20 formula.¹¹

The formula is as follows:

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

Where:

R_{11} = Reliability of the instrument

n = Total of question

S_t = Variants total

$\sum pq$ = Total of the result times p and q

p = Proportion of subject who is right answer

q = Proportion of subject who is wrong answer

⁹ L.R. Gay and Peter Airasian, *Educational Research: Competencies for Analysis and Application*....., p. 155.

¹⁰ H Douglas Brown, *Language Assessment Practical and Language Practice* (San Fransisco: Longman, 2003) p. 21

¹¹ Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan, Edisi 2*, (Jakarta: Bumi Aksara, 2012), p.115.

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

The result of reliability in Pre-test r_{count} was 1.01 and r_{table} was 0.70. based on the calculation above, the test has high reliable. It can be seen in appendix 14.

The result of reliability in Pos-test r_{count} was 0.99 and r_{table} was 0.70. based on the calculation above, the test has high reliable. It can be seen in appendix 15.

F. The Procedures of the Research

In collecting data to determine the result of the research, the researcher used test to students. The test is divided into two kinds; pre-test and post-test. This test concluded some steps, they are:

1. Pre-test

The pre-test was conducted to find out the homogeneity of the sample. It was be done to know the students' reading comprehension before researcher gave the treatment in experimental class. In this case, the researcher used some steps, they are:

- a) The researcher prepared the test 20 items.
- b) The researcher distributed the paper of the test to students of experimental class and control class.
- c) The researcher explained what to do.

- d) The researcher gave the students time to do the test.
- e) The students answered the question.
- f) The researcher collected students' paper test.
- g) The researcher checked the answer of students and finds the mean score of control and experimental class.

2. Treatment

The experiment class taught by Cooperative Integrated Reading and Composition technique, while the control class taught by conventional strategy. The researcher has some procedures in treatment class. They are:

- a) For the beginning, researcher opened the learning activity with greeting. Then researcher asked students to take a pray. Next, researcher explained indicators and gave them motivation.
- b) The researcher announced the rules of CIRC Technique.
- c) Teacher divided class becomes some groups, every group consisted of 4 students.
- d) Teacher gave the text based on the material.
- e) Students worked together to read one another and found the main idea and gave response to the text.
- f) Students wrote it on a sheet of paper.
- g) Students read the result of discussion.
- h) Teacher made summary or conclusion about important information from the text and the lesson.

3. Post-test

After giving treatment, the researcher conducted a post test which the different test with the pre-test, and has not been conducted in the previous of the research. This post-test was the final test in the research, especially measuring the treatment. Whether is an effect or not. After conducting the post-test, the researcher analyzed the data. Then, the researcher found out the effect of using CIRC technique in experimental class. The researcher has some procedures, they are:

- a) The researcher prepared the test 20 items.
- b) The researcher distributed the paper of the test to students of experimental class and control class.
- c) The researcher explained what to do.
- d) The researcher gave the students time to do the test.
- e) The students answered the question.
- f) The researcher collected students' paper test.
- g) The researcher checked the answer of students and found the mean score of control and experimental class.

G. The Technique of analyzing data

The techniques of analyzing data that was be used by the researcher were:

1. Requirement test

- a) Normality Test

To know the normality, the researcher used *Chi-Square* formula. The formula is as follow:

$$x^2 = \sum \left(\frac{f_0 - f_h}{f_h} \right)$$

Where:

x^2 = Chi-Square

f_0 = 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

b) Homogeneity Test

To test the data whether is homogenous or not, the researcher used Harley test, as follow: ¹²

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

Where:

n_1 = Total of the data that bigger variant

n_2 = Total of the data that smaller variant

Hypothesis is rejected if $F \leq F_{\frac{1}{2}a(n_1-1)} (1=n_2-1)$, while if $F_{\text{count}} > F_{\text{table}}$ hypothesis is accepted. It determined with significant level 5% (0.05) and dk numerator was (n_1-1) , while dk deminator is (n_2-1) .

¹² Agus Irianto, *Statistik Konsep Dasar*, p.276

The way to measure the success of students in studying from the mean score that the researcher used the qualitative interpretation:¹³ as follow:

Table 6
The interpretation of mean score

Number of Score	Predicate
80 and above	Very good
66-79	Good
56-65	Enough
46-55	Less
45 down	Fail

Based on the result of this research from the mean score in experimental class before using CIRC technique was 60.6, the predicate was enough. The after using CIRC technique the mean score was 77.3, the predicate was good.

2. Hypothesis test

Hypothesis is the provisional result of the research. So, the researcher was analyzed the data which have been divided into two groups: experimental class and control class. The data was analyzed by using *t-test* formula. The formula is:¹⁴

$$Tt = \frac{X_1 - X_2}{\sqrt{\left(\frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}\right) \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

¹³ Anas Sudijono, *Pengantar Evaluasi Pendidikan* (Jakarta: PT Raja Grafindo Persada, 2013), P. 35

¹⁴ Sugiyono, *Statistika Untuk Penelitian*, (Bandung: CV Alfabeta, 2006), p. 135

Where:

t : the value which the statistical significant

X_1 : the average score of the experimental class

X_2 : the average score of the control class

s_1^2 : deviation of the experimental class

s_2^2 : deviation of the control class

n_1 : number of experimental

n_2 : number of control class

CHAPTER IV

DATA ANALYSIS

To analyze the data, the researcher has collected data through pre-test and post-test in the both of classes, experimental class and control class. To find out the effect of CIRC technique on students' reading comprehension, the researcher has calculated the data by using quantitative analysis. The researcher used the formulation of T-test to test the hypothesis. Next, the researcher described the data as follow:

A. The Description of Data

1. The Description of Data before Using Cooperative Integrated reading and Composition Technique

As the experimental clas, the researcher took XI IPA 3. The description of the data of Experimental class in the table below:

Table 7
Score of pre-test in experimental class

No	The Name of Students	Score of Pre Test
1	Andri Syaputra	70
2	Alwin Fahri Srg	45
3	Aman Saleh Srg	60
4	Amirul Lubis	50
5	Arya Mukti Hrp	65
6	Efriana Sari Stp	75
7	Fadillah Riska	35
8	Fazri	80
9	Hijjah Fadilla	50

No	The Name of Students	Score of Pre Test
10	Holida Safitri	45
11	Inju Paramita	50
12	Lailatussifa Srg	75
13	Lenni Kesuma	60
14	Lidia	55
15	MHM. Fauzan Rangkuti	50
16	Nia Merianti	70
17	Nur Ainun Srg	80
18	Nur Asiah Lubis	60
19	Padilla Fitria	55
20	Raihan Daffa	40
21	Risky Amalia Hsb	80
22	Riski Amelia sari	45
23	Roslina Hrp	60
24	Rahmirezeki	50
25	Siti Hairani	75
26	Sri Yani	55
27	Ulfa Fauziah	85
28	Wahyu Putra	80
29	Yogi Eka Saputra	60
30	Yusrilhza Mahendra	55
Total		1815

Based on the table the total score of experimental class in pre-test was 1815, the lowest score was 35 and the highest score was 85.

As the control clas, the researcher took XI IPA 4. The description of the data control class in the table below:

Table 8
Score of pre-test in control class

No	The Name of Students	Score of PreTest
1	Adella Puspita	70
2	Agung Adiansyah	60
3	Alisah Sanira	40
4	Anggi FitriaLubis	80
5	Aulia Rahman Siregar	70
6	Baina	55
7	Desi Romadani	75
8	Dinda Hamidi Lubis	40
9	DoniIndraWijaya Harahap	60
10	Fatima Sari Harahap	85
11	Fauzi Nasution	55
12	Fitriana Harahap	35
13	Indra Sulaiman	75
14	IrsyadHamdi	60
15	Jamaluddin Siregar	65
16	Khoirul Sehat Siregar	66
17	Khoirun Nisa	45
18	Lasmaita	55
19	Madia	30
20	M. Zakwanjohari Siregar	55
21	Nanda Yuspita	80
22	Nurhikmah	35
23	Nofrya Rahayu Shinta	40
24	Osama Siregar	45
25	Putri Diana	80
26	Putrid Nopriani Lubis	40
27	Rika Sasmita	35
28	Riski Maimunah Lubis	55
29	Ryan Fadli	70
30	Widia Safitri Nasution	60
Total		1705

Based on the table the total score of control class in pre-test was 1705, the lowest score was 35 and the highest score was 80.

2. The Description of Data after Using Cooperative Integrated reading and Composition Technique

As the experimental class, the researcher took XI IPA 3. The description of the data of Experimental class in the table below:

Table 9
Score of Post-Test Experimental Class

No	The Name of Students	Score of Post Test
1	Andri Syaputra	75
2	Alwin FahriSrg	60
3	Aman SalehSrg	70
4	Amirul Lubis	60
5	Arya Mukti Hrp	75
6	Efriana Sari Stp	80
7	Fadillah Riska	65
8	Fazri	80
9	Hijjah Fadilla	75
10	Holida Safitri	55
11	Inju Paramita	80
12	Lailatussifa Srg	55
13	Lenni Kesuma	75
14	Lidia	70
15	MHM. Fauzan Rangkuti	80
16	Nia Merianti	75
17	Nur Ainun Srg	90
18	Nur Asiah Lubis	75
19	Padilla Fitria	70
20	Raihan Daffa	65
21	Risky Amalia Hsb	90
22	Riski Amelia sari	80
23	Roslina Hrp	70
24	Rahmi Rezeki	75

No	The Name of Students	Score of Post Test
25	Siti Hairani	90
26	Sri Yani	70
27	Ulfa Fauziah	90
28	Wahyu Putra	80
29	Yogi Eka Saputra	75
30	Yusril Ihza Mahendra	70
Total		2220

Based on the table the total score of eksperimental class in pre-test was 2220, the lowest score was 55 and the highest score was 90.

As the control clas, the researcher took XI IPA 4. The description of the data control class in the table below:

Table 10
Score of Post-Test Control Class

No	The Name of Students	Score of PreTest
1	AdellaPuspita	70
2	AgungAdiansyah	65
3	AlisahSanira	55
4	AnggiFitriaLubis	90
5	AuliaRahmanSiregar	80
6	Baina	60
7	DesiRomadani	85
8	DindaHmidiLubis	50
9	DoniIndraWijayaHarahap	70
10	Fatima Sari Harahap	85
11	FauziNasution	70
12	FitrianaHarahap	55
13	IndraSulaiman	80
14	IrsyadHamdi	65
15	JamaluddinSiregar	65
16	KhoirulSehatSiregar	80
17	KhoirunNisa	70

No	The Name of Students	Score of PreTest
18	Lasmaita	70
19	Madia	75
20	M. ZakwanjohariSiregar	75
21	Nanda Yuspita	90
22	Nurhikmah	70
23	NofryaRahayuShinta	75
24	Osama Siregar	75
25	Putri Diana	85
26	Putrid NoprianiLubis	80
27	Rika Sasmita	75
28	RiskiMaimunahLubis	80
29	Ryan Fadli	80
30	WidiaSafitriNasution	65
Total		2190

Based on the table the total score of control class in pre-test was 2190, the lowest score was 55 and the highest score was 90.

B. The Data Analysis

1. The analysis of the students' score

a. The analysis for experimental class in Pre-test

Table11
The Score of Experimental Class in Pre-test

Total	1705
Highest score	85
Lowest score	35
Mean	60.6
Median	57
Modus	51.21
Range	50
Interval	9
Standard deviation	13.61
Variants	185.34

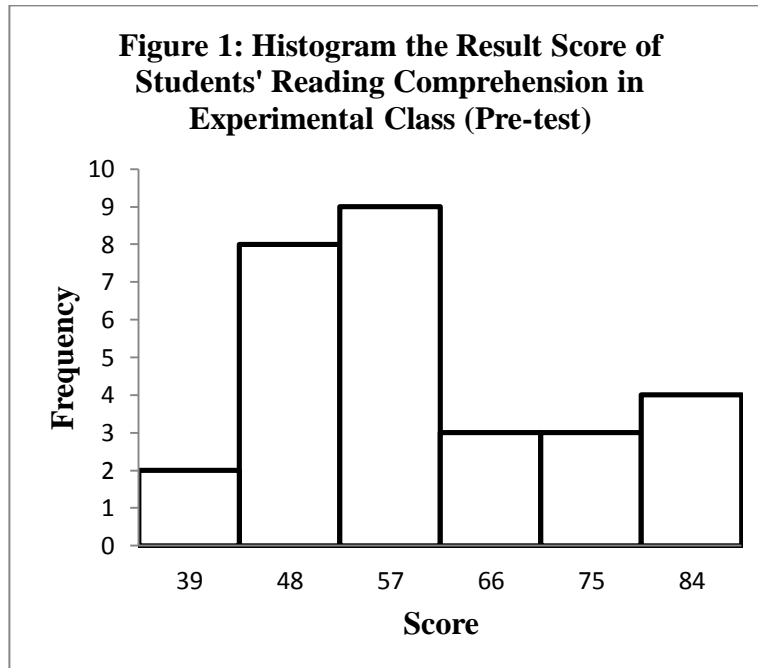
Based on the above table the total score of experimental class in pre-test was 1705, mean was 60.6, standard deviation was 13.61, variants was 185.34, median was 57, range was 50, modus was 51.21, interval was 9. The researcher got the highest score was 85 and the lowest score was 35. It can be seen on appendix 17. Then, the calculation of the frequency distribution of the students' score of experimental class can be applied into table frequency distribution as follow:

Table 12
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	35 – 43	39	2	6.67%
2	44 – 52	48	8	26.67%
3	53 – 61	57	9	30%
4	62 – 70	66	3	10%
5	71 – 79	75	3	10%
6	80 – 88	84	5	16.66%
<i>i</i> = 10		-	30	100%

From the table above, the students' score in class interval between 35–43 was 2 students (6.67%), class interval between 44–52 was 8students (26.67%), class interval between 53–61 was 9students (30%), class interval between 62–70 was 3 students (10%), class interval between 71–79 was 5students (10%), and the last class interval between 80–88 was5 students (16.66%).

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



From the histogram above, the students' score 39 was 2 students, the students' score 48 was 8 students, the students' score 57 was 9 students, the students' score 66 was 3 students, the students' score 75 was 3 students, and the last the students' score 84 was 5 students.

b. The Analysis for Control Class in Pre-test

Table 13
The Score of Control Class in Pre-test

Total	1705
Highest score	80
Lowest score	30
Mean	57.4
Median	55.21
Modus	54.25
Range	50
Interval	9
Standard deviation	14.76
Variants	224.97

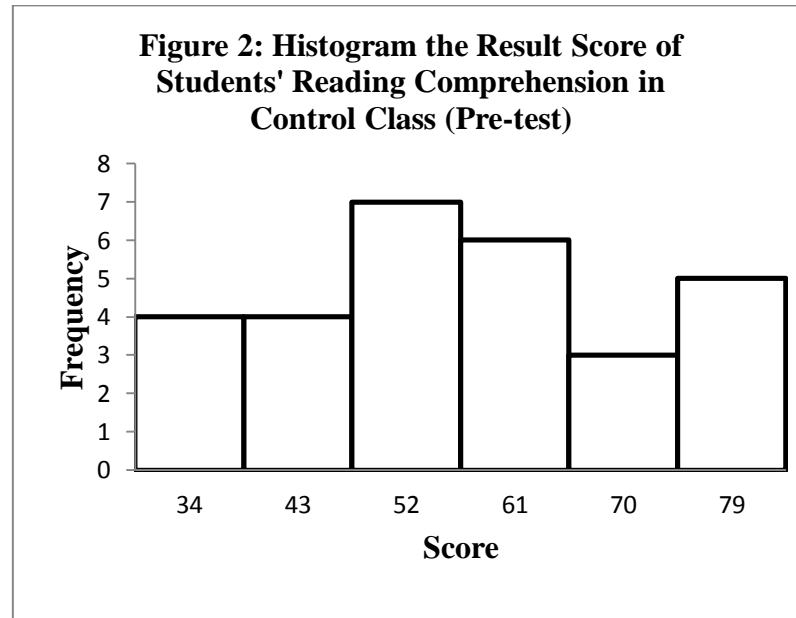
Based on the above table the total score of Control class in pre-test was 1705, mean was 57.4, standard deviation was 14.76, variants was 224.97, median was 55.21, range was 50, modus was 54.25, interval was 9. The researcher got the highest score was 80 and the lowest score was 30. It can be seen on appendix 17. Then, the calculation of the frequency distribution of the students' score of control class can be applied into table frequency distribution as follow:

Table 14
Frequency Distribution of Control Class (Pre-test)

No	Interval	Mid-Point	Frequency	Percentages
1	30 – 38	34.5	4	13.33%
2	39 – 47	43.5	4	13.33%
3	48 – 56	52.5	7	23.34%
4	57 – 65	61.5	6	20%
5	66 – 74	70.5	3	10%
6	75 – 83	79.5	6	20%
<i>i</i> = 9		-	30	100%

From the table above, the students' score in class interval between 30–38 was 4 students (13.33%), class interval between 39–47 was 4 students (13.33%), class interval between 48–56 was 7 students (23.34%), class interval between 57–65 was 6 students (20%), class interval between 66–74 was 3 students (10%), and the last class interval between 75–83 was 6 students (20%).

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



From the histogram above, the students' score 34 was 4 students, the students' score 43 was 4 students, the students' score 52 was 7 students, the students' score 61 was 6 students, the students' score 70 was 3 students, and the last the students' score 79 was 6 students.

c. The Analysis for Experimental Class in Post-test

Table 15
The Score of Experimental Class in Post-test

Total	2220
Highest score	90
Lowest score	55
Mean	77.3
Median	74.72
Modus	78.5
Range	35
Interval	6
Standard deviation	9.96
Variants	90.34

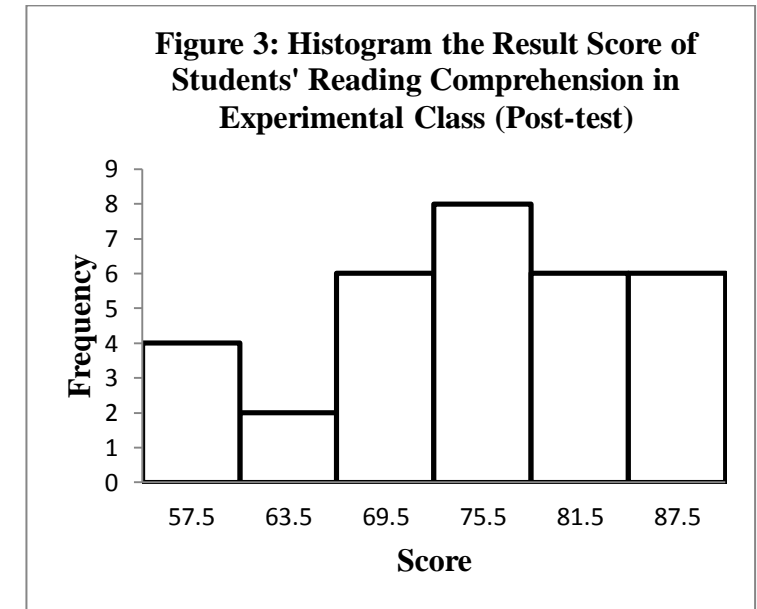
Based on the above table the total score of experiment class in post-test was 2220, mean was 77.3 standard deviation was 9.06, variants was 90.34, median was 74.72, range was 35, modus was 78.5, interval was 6. The researcher got the highest score was 90 and the lowest score was 55. It can be seen on appendix 20. Then, the calculation of the frequency distribution of the students' score of experimental class can be applied into table frequency distribution as follow:

Table 16
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	55 – 60	57.5	4	13.33%
2	61 – 66	63.5	2	6.67%
3	67 – 72	69.5	6	20%
4	73 – 78	75.5	8	26.67%
5	79 – 84	81.5	6	20%
6	85 – 90	87.5	4	13.33%
$i = 6$		-	30	100%

From the table above, the students' score in class interval between 55–60 was 4students (13.33%), class interval between 61–66 was 2 students (6.67%), class interval between 67–72 was 6 students (20%), class interval between 73–78was 8 students (26.67%), class interval between 79–84 was 6 students (20%), and the last class interval between 85–90 was 4 students (13.33%).

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



From the histogram above, the students' score 57.5 was 4 students, the students' score 63.5 was 2 students, the students' score 69.5 was 6 students, the students' score 75.5 was 8 students, the students' score 81.5 was 6 students, and the last the students' score 87.5 was 4 students.

d. The Analysis for Control Class in Post-test

Table 17
The Score of Control class in Post-test

Total	2190
Highest score	90
Lowest score	50
Mean	72.81
Median	74.7
Modus	71.48
Range	40
Interval	7
Standard deviation	10.36
Variants	102.75

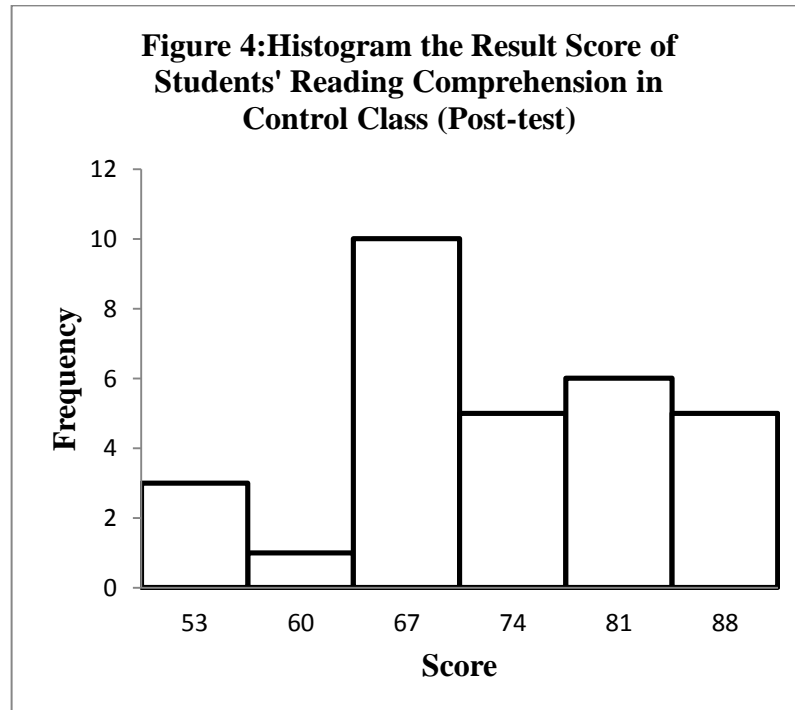
Based on the above table the total score of control class in post test was 2190, mean was 72.81 standard deviation was 10.36, variants was 102.75, median was 74.7, range was 40, modus was 71.48, interval was 7. The researcher got the highest score was 90 and the lowest score was 50. It can be seen on appendix 20. Then, the calculation of the frequency distribution of the students' score of control class can be applied into table frequency distribution as follow:

Table 18
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	50 – 56	53	3	10%
2	57 – 63	60	1	3.33%
3	64 – 70	67	10	33.33%
4	71 – 77	74	5	16.67%
5	78 – 84	81	6	20%
6	85 – 91	88	5	16.67%
$i = 7$		-	30	100%

From the table above, the students' score in class interval between 50–56 was 3students (10%), class interval between 57–63 was 1 students (3.33%), class interval between 64–70 was 10 students (33.33%), class interval between 71–77was5 students (16.67%), class interval between 78–84 was 6 students (20%), and the last class interval between 85–91 was 5 students (16.67%).

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



From the histogram above, the students' score 53 was 3 students, the students' score 60 was 1 student, the students' score 67 was 10 students, the students' score 74 was 5 students, the students' score 81 was 6 students, and the last the students' score 88 was 5 students.

2. Description of the Comparison Data between Pre-Test and Post-Test of Experimental and Control Class

a. The Comparison Data between Pre-Test and Post-Test by Using Cooperative Integrated Reading and Composition Technique

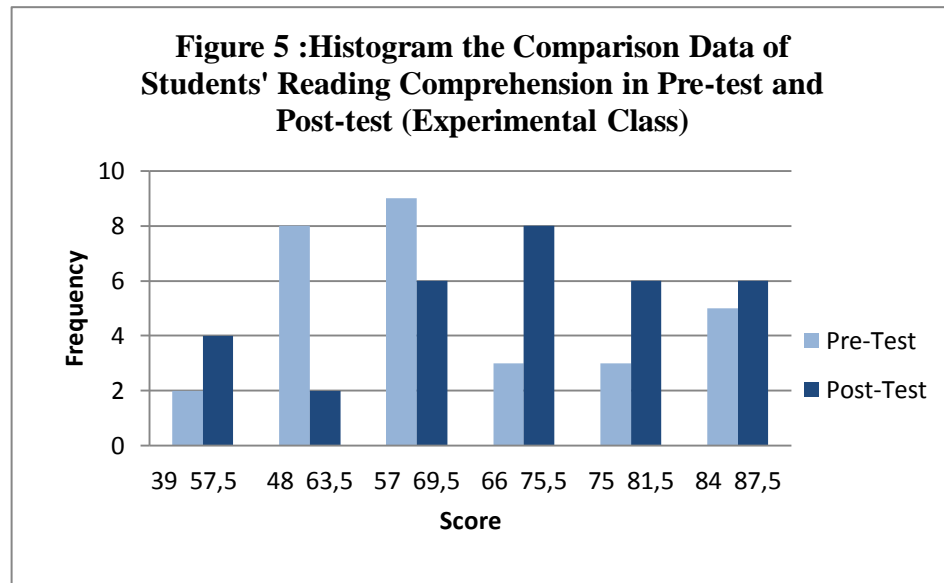
The comparison score between pre-test and post-test of experimental class can be seen in the following table:

Table 19
The Comparison Data of Experimental Class
in Pre-test and Post-Test

Description	Pre-Test	Post-Test
Total	1705	2220
Highest score	85	90
Lowest score	35	55
Mean	60.6	77.3
Median	57	74.72
Modus	51.21	78.5
Range	50	35
Interval	9	6
Standard deviation	13.61	9.96
Variants	185.34	90.34

Based on the above table the total score of experimental class in pre-test was 1705; post-test was 2220, pre-test mean score was 60.6; post-test was 77.3, pre-test standard deviation was 13.61; post-test was 9.96, pre-test variants was 185.34; post-test was 90.34, pre-test median was 57; post-test was 74.72, pre-test range was 50; post-test was 35, pre-test modus was 51.21; post-test was 78.5, pre-test interval was 9; post-test was 6. The researcher got the highest score of pre-test was 85 and the lowest score was 35; mean while the highest score of post-test was 90 and the lowest score was 55. From the data above, the students' scores of experimental class in pre test was higher than post test.

In order to get the pre-test and post-test data description of experimental class clearly and completely, the researcher presents the histogram on the following figure:



From the histogram above, the students' scores of experimental class in pre-test was higher than post test.

b. The Comparison Data between Pre-Test and Post-Test by Using Conventional Technique

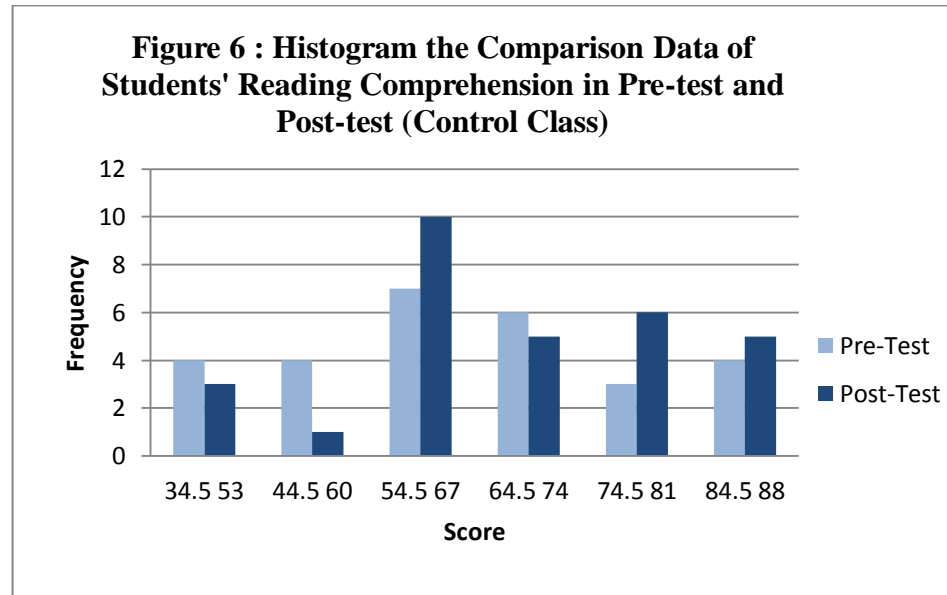
The comparison score between pre-test and post-test of control class can be seen in the following table:

Table 20
The Comparison Data of Control Class
in Pre-test and Post-test

Description	Pre-test	Post-test
Total	1705	2190
Highest score	85	90
Lowest score	30	50
Mean	59.9	72.81
Median	60.9	74.7
Modus	64.5	71.48
Range	55	40
Interval	10	7
Standard deviation	17.08	10.36
Variants	292.21	102.75

Based on the above table the total score of control class in pre-test was 1705; post-test was 2190, pre-test mean score was 59.9; post-test was 72.81, pre-test standard deviation was 17.08; post-test was 10.36, pre-test variants was 292.21; post-test was 102.75, pre-test median was 60.9; post-test was 74.4, pre-test range was 55; post-test was 40, pre-test modus was 64.5; post-test was 71.48, pre-test interval was 10; post-test was 7. The researcher got the highest score of pre-test was 85 and the lowest score was 30; mean while the highest score of post-test was 90 and the lowest score was 50. From the data above, students' scores in control class in post test was higher than pre test

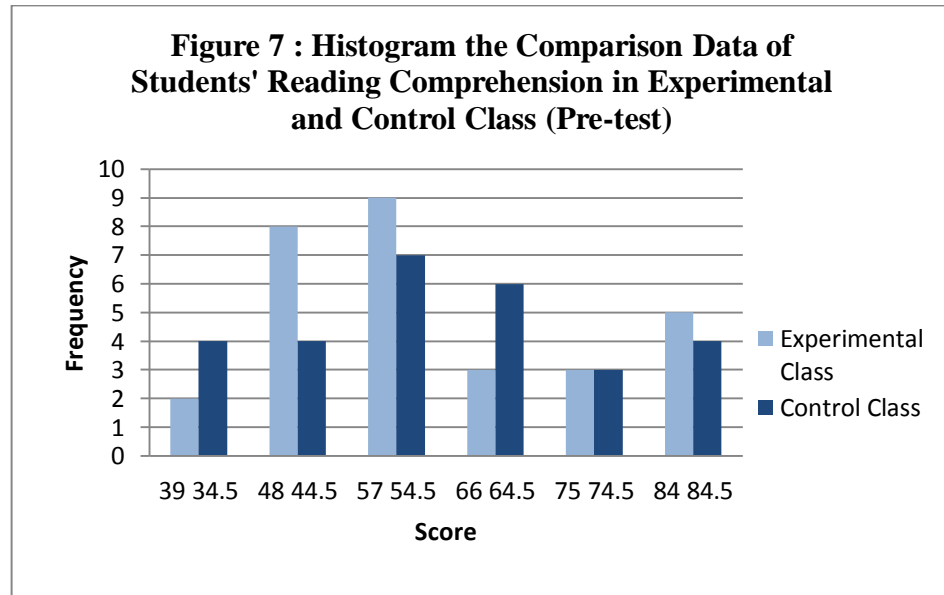
In order to get the pre-test and post-test data description of control class clearly and completely, the researcher presents the histogram on the following figure:



From the histogram above, the students' scores of control class in post-test was higher than pre test.

c. The Comparison Data between Cooperative Integrated Reading and Composition Together Technique and Conventional Technique in Pre Test

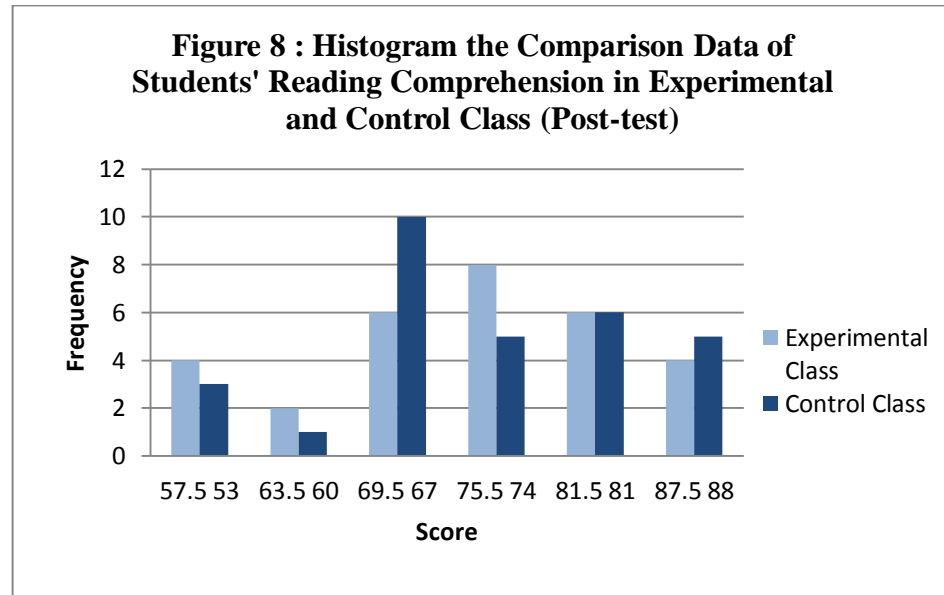
Before the researcher gave treatment to the class, researcher gave pre test to both of class (XI IPA 3 as experimental and XI IPA 4 as control class). In pre test, the researcher did not apply treatment to experimental and control class. The researcher got the comparison data between pre test score in experimental and control class before gave a treatment. The comparison data can be seen in the following histogram:



From the description of comparison data above, it can be concluded that the students' score of experimental class was higher than the students' score of control class in answering the pre test.

d. The Comparison Data between Using Cooperative Integrated Reading and Composition Technique and Conventional Technique in Post Test

After the researcher gave a treatment to one of class as experimental class by using Cooperative Integrated Reading and Composition Technique and other class was not gave a treatment as control class. The researcher got the comparison data between post-test score an experimental and control class after gave a treatment. The comparison data can be seen in the following histogram:



From the description of comparison data above, it can be concluded that the students' score of experimental class by using Cooperative Integrated Reading and Composition technique was higher than the students' score of control class by using Conventional technique.

3. Test Hypothesis

After calculating the data of post-test, researcher found that post-test result of experimental class and control class is normal and homogenous. Based on the result, researcher used parametric test by using T-test to analyze the hypothesis. Hypothesis alternative (H_a) of the research was "Cooperative Integrated Reading and Composition technique has effect on students' reading comprehension at grade XI SMA N 5 Padangsidimpuan". The calculation can be seen on the appendix 22 and 23. The result of t-test was as follow:

Table 21
Result of T-test from the Both Averages

Pre-test		Post-test	
t_{count}	t_{table}	t_{count}	t_{table}
0.846	1.67155	1.727	1.67155

The test hypothesis have two criteria. First, if $t_{count} < t_{table}$, H_0 is accepted. Second, $t_{count} > t_{table}$, H_a is accepted. Based on researcher calculation in pre test, researcher found t_{count} 0.846 while t_{table} 1.67155 with opportunity $(1 - \alpha) = 1 - 5\% = 95\%$ and $dk = n_1 + n_2 - 2 = 30 + 30 - 2 = 58$. Cause $t_{count} < t_{table}$ (0.846 < 1.67155), it meant that hypothesis H_a was rejected and H_0 was accepted. So, in pre test, two classes were same. There is no difference in the both classes. But, in post test, researcher found that t_{count} 1.727 while t_{table} 1.67155 with opportunity $(1 - \alpha) = 1 - 5\% = 95\%$ and $dk = n_1 + n_2 - 2 = 30 + 30 - 2 = 58$. Cause $t_{count} > t_{table}$ (1.727 > 1.67155), it meant that hypothesis H_a was accepted and H_0 was rejected. The calculation can be seen on the appendix 23. In this case, the mean score of experimental class by using Cooperative Integrated Reading and Composition technique was 77.3 and mean score of control class was 72.81 that was taught by using conventional technique. So, there was the effect of Cooperative Integrated Reading and Composition technique on students' reading comprehension at grade XI SMA N 5 Padangsidimpuan.

C. The Discussion

Based on the result of the data analysis, the researcher got the mean score of experimental in pre-test was 60.6 and in post-test was 77.3. The improving was 16.7. Then, the mean score of control class in pre-test was 57.4 and in post-test was 72.81. The improving was 15.42. So, based on its comparing can be concluded that the improvement of experimental class was higher than control class. Automatically, cooperative integrated reading and composition technique had the effect on students' reading comprehension.

Based on above result, the researcher compared the researcher's result with the related finding. It also discussed with the theory that has been stated by researcher. Related to the theory from Caroline, Reading is a set of skills that involves making sense and deriving meaning from the printed word.¹ So, reading is not only knowing how to read but also making sense and taking meaning from the printed words. Then, CIRC technique provides a structure to help teachers and students succeed in helping all students became effective reader.² Beside it, Miftahul Huda states this technique is designed to accommodate the level of students' abilities, both through heterogeneous and homogeneous grouping.³

¹Caroline T.Linse, *Practical English Language Teaching: Young Learners*, (New York: McGraw-Hill, 2005), p. 69.

²Madhu Gupta & Jyoti Ahuja, "Cooperative Integrated Reading and Composition (CIRC): Impact on Reading Comprehension Achievement in English Among Seventh Graders" *Impact Journal*, vol.2 no. 5, 2014 (www.impactjournal.us accessed on 12 August 2018)p. 39

³Miftahul Huda, *Cooperative Learning Metode, Teknik , Struktur dan Model Terapan*(Yogyakarta: PustakaPelajar, 2013) p. 126

Based on the related findings, Thesis by YuliMarlina said that Cooperative Integrated Reading and Composition technique was effective to use in teaching reading. It can be seen from the gain score of experimental class that was taught by using Cooperative Integrated Reading and Composition technique was higher (72.20) than of control class (63.60).⁴ So, it was same with the result of this thesis that the implication of Cooperative Integrated Reading and Composition technique was suitable to teach students' reading comprehension and give a positive effect on students' reading comprehension. It can be seen from the mean score.

Next, NikenEkaPratiwi said that Cooperative Integrated Reading and Composition technique gave a significant effect on reading comprehension achievement. It can be seen from the test scores that the statistical value of the t-test was higher than that of the value of t-table with significant level of 5% ($2.797 > 2.064$).⁵ It meant that the Cooperative Integrated Reading and Composition technique suitable to teach students' reading comprehension.

⁴YuliMarlina, The Effectiveness of Cooperative Integrated Reading and Composition (CIRC) Technique on Students' Reading Comprehension in Narrative Text of the Second Year Students at Islamic Senior High School Al-Muttaqien Bunga Raya Siak Regency, (Pekanbaru: UIN SUSKA Riau, 2013), p. 62, retrieved in http://repository.uin-suska.ac.id/10050/1/2013_2013794PBI.pdf on Tuesday, December 4, 2018.

⁵NikenEkaPratiwi, The Effectiveness of Cooperative Integrated Reading and Composition (CIRC) Strategy to the Students' Reading Comprehension Achievement in Descriptive Text to the Tenth Grade Students' At Ma Hm Tribakti Kediri in Academic Year 2014/2015, (Kediri: Universitas Nusantara, 2015), p. 41 retrieved in http://simki.unpkediri.ac.id/mahasiswa/file_artikel/2015/11.1.01.08.0139.pdf on Tuesday, December 4, 2018.

Then, Istarani said that CIRC technique is suitable to teach English Language Learning like Reading Comprehension. There are some advantages of CIRC technique. One of them is students can respond freely, trained to be able to cooperate, and respect the others' opinion.⁶So, CIRC technique can be applied to decrease inactivity in learning process and lack of courage in expressing opinions, so they can find the better understanding about their reading comprehension.

This proofs show that Cooperative Integrated Reading and Composition technique is suitable in teaching reading comprehension. So, Cooperative Integrated Reading and Composition technique has given the effect to the research that has been done by the researcher or the other researcher who mentioned in related findings.

D. The Threats of the Research

The researcher found the threats of the research as follows:

1. The researcher was not sure whether all of students in the experimental and control class did the test honestly. There was a possibility that some of them answered the test by copying or imitating their friends' answer.
2. The students were noisy while the learning process. They were not concentrating in following the learning process. Some of them talked to their friends and some of them did something outside the teacher's rule. Clearly, it

⁶Istarani, *58 Model Pembelajaran Inovatif* (Medan: Media persada, 2012), p. 114

made them can't get the teacher's explanation well and gave the impact to the post-test answer.

3. The students also possibility that the score of pre-test and post-test would not influence to their score in the school. So, they were not too serious in answering it.

CHAPTER V

CONCLUSION AND SUGGESTION

A. Conclusion

Based on the result of the research, the conclusions of this research are:

1. The mean score of pre-test for the experimental class that used Cooperative Integrated Reading and Composition technique was 60.6, so before using Cooperative Integrated Reading and Composition technique, students' reading comprehension was enough.
2. The mean score of post-test for the experimental class was 77.3. After using Cooperative Integrated Reading and Composition technique, the mean score of experimental class was higher than before using Cooperative Integrated Reading and Composition technique. The students' reading comprehension is good.
3. The researcher found the research result of t-test where t_0 was higher than t_t , t_0 was 1.727 and t_t was 1.67155 ($1.727 > 1.67155$). It meant that H_a was accepted, so there was significant effect of Cooperative Integrated Reading and Composition technique on students' reading comprehension at grade XI SMA N 5 Padangsidempuan.

B. Suggestion

After finishing the research, the researcher got some information in English teaching and learning. Therefore, from the experience, the researcher

saw some things need to be improved. It makes the researcher give some suggestions, as follow:

1. From the research result it can be seen that the students' score were enough. The researcher hopes to the English teacher of SMA N 5 Padangsidimpuan to apply various innovative techniques in teaching English. It also can be supported by choosing right media and good class management.
2. From the second conclusion, it can be seen that the experimental class which was taught by Cooperative Integrated Reading and Composition technique got the improvement on mean score from 60.6 to 77.3, meanwhile the control class which was taught by got the improvement of mean score from 57.4 to 72.81. So, the researcher suggests to the English teacher of SMA N 5 Padangsidimpuan to use these strategies in teaching reading, because the students' will be more active and seriously in learning English reading.
3. From the last conclusion, it can be seen that score of experimental class was higher than control class. The researcher suggests to use CIRC technique to another classes, or in different grade, even in another schools, because of the improvement that has been made by using this technique. So, it is hoped that CIRC technique can increase students' reading comprehension in larger area.

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CURRICULUM VITAE



A. Identity

Name : Nurul Yadani Harahap
Reg. No. : 14 203 00107
Place/Birth : Gunung Manaon/January, 6th 1996
Sex : Female
Religion : Islam
Address : Gunung Manaon Kecamatan Simangambat

B. Parents

Father's Name : Pangulu Harahap
Mother's Name : Siti Asmila Hasibuan

C. Educational Background

1. Elementary School : SD Negeri 101810 Gunung Manaon (2008)
2. Junior High School : MTs PP Ahmadul Jariah Kotapinang (2011)
3. Senior High School : MA PP Ahmadul Jariah Kotapinang (2014)
4. Institute : IAIN Padangsidimpuan (2019)

Appendix 1

Experimental Class

RENCANA PELAKSANAAN PEMBELAJARAN (RPP)

Nama Sekolah : SMA N 5 Padangsidempuan
Mata Pelajaran : Bahasa Inggris
Kelas/ Semester : XI/ II (Dua)
Alokasi Waktu : 2 x 45 menit (2 JP)

- A. Standar Kompetensi** : Memahami makna teks tulis fungsional dan Esei pendek sederhana berbentuk report yang berkaitan dengan lingkungan sekitar.
- B. Kompetensi Dasar** : Membaca nyaring bermakna teks tulis fungsional dan esei pendek sederhana berbentuk report dengan menggunakan ragam bahasa tulis secara akurat, ucapan, tekanan dan intonasi yang berterima dan berkaitan dengan lingkungan sekitar.
- C. Jenis Teks** : Report Text
- D. Aspek/ Skill** : Membaca
- E. Indikator** :
- Membaca dan memahami teks report
 - Mengidentifikasi topik dalam teks report

- Mengidentifikasi ide pokok dalam teks report
- Mengidentifikasi informasi yang dibutuhkan/ informasi spesifik dari teks report
- Memahami kosakata yang terdapat dalam esei pendek sederhana berbentuk teks report
- Menyimpulkan informasi yang terdapat dalam teks report

F. Tujuan Pembelajaran :

Pada akhir pembelajaran diharapkan:

- Siswa mampu membaca dan memahami teks report
- Siswa mampu mengidentifikasi topik dalam teks report
- Siswa mampu mengidentifikasi ide pokok dalam teks report
- Siswa mampu mengidentifikasi informasi yang dibutuhkan/ spesifik informasi dari teks report
- Siswa mampu memahami kosakata yang terdapat dalam esei pendek sederhana berbentuk teks report
- Siswa mampu menyimpulkan informasi yang terdapat dalam teks report

G. Materi Pembelajaran : Teks monolog berbentuk teks report

H. Metode Pembelajaran :Cooperative Integrated Reading and Composition (CIRC) Technique

I. Langkah-langkah Kegiatan

1. Kegiatan Pendahuluan :

- Guru memasuki kelas dengan mengucapkan salam dan menyapa siswa dengan bahasa Inggris.
- Guru meminta siswa untuk membuka kelas dengan berdo'a.
- Guru mengabsen siswa.
- Guru memberi motivasi siswa terkait pentingnya kompetensi pelajaran yang akan dikuasai
- Guru menjelaskan secara ringkas tentang materi yang akan dipelajari.

2. Kegiatan Inti :

- Guru memberikan teks berbentuk teks report kepada siswa
- Guru menjelaskan kompetensi yang ingin dicapai

Prosedur Metode CIRC:

1. Membentuk kelompok yang anggotanya 4 orang secara heterogen .
2. Guru member wacana/ kliping sesuai dengan topik pembelajaran.
3. Peserta didik bekerja sama saling membacakan dan menemukan ide pokok dan memberi tangga panterhadap

wacana/ kliping dan ditulis dalam selembar kertas.

4. Mempresentasikan/ membacakan hasil bersama.
5. penutup

3. Kegiatan Penutup :

- Guru menanyakan kesulitan siswa selama kegiatan pembelajaran
- Guru mengkonfirmasi jawaban/ hasil kerja siswa dan memberikan kesimpulan tentang materi yang telah diajarkan
- Guru memberikan test kepada siswa
- Guru meminta siswa mengakhiri kelas dengan berdoa

J. Sumber Belajar :

- Buku-buku yang relevan
- Wacana yang berisikan teks report

K. Penilaian :

Indikator Pencapaian Kompetensi	Teknik Penilaian	Bentuk Instrument	Instrument Soal
1. Mengidentifikasi main idea dalam teks report 2. Mengidentifikasi informasi detail dalam teks report 3. Mengidentifikasi informasi yang dibutuhkan/ spesifik informasi dari teks report 4. Mengetahui arti yang terdapat dalam teks	Test Tertulis	Mutiple choice	Choose the correct answer by crossing a, b, c, or d

report			
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1. Pedoman Penilaian :

- a. Jumlah skor maksimal keseluruhan adalah 100
- b. Setiap jawaban benar diberi skor 5
- c. Jumlah skor keseluruhan $5 \times 20 = 100$ (test tulis)

2. Rubrik Penilaian :

Uraian	Skor
Jawaban Benar	5
Jawaban Salah	0

Mengetahui,
Validator

Padangsidempuan,

2018

Researcher

Zainuddin, S.S., M.Hum
NIP. 19760610 200801 1 016

Nurul Yadani Harahap
NIM. 14 203 00107

Appendix 2

Control Class

RENCANA PELAKSANAAN PEMBELAJARAN (RPP)

Nama Sekolah : SMA Negeri 5 Padangsidempuan
Mata Pelajaran : Bahasa Inggris
Kelas/ Semester : XI/ II (Dua)
Alokasi Waktu : 2 x 45 menit (2 JP)

- L. Standar Kompetensi** : Memahami makna teks tulis fungsional dan esei pendeksederhana berbentuk report yang berkaitan dengan lingkungan sekitar.
- M. Kompetensi Dasar** : Membaca nyaring bermakna teks tulis fungsional dan esei pendek sederhana berbentuk report dengan menggunakan ragam bahasa tulis secara akurat, ucapan, tekanan dan intonasi yang berterima dan berkaitan dengan lingkungan sekitar.
- N. Jenis Teks** : Report Text
- O. Aspek/ Skill** : Membaca
- P. Indikator** :
- Membaca dan memahami teks report
 - Mengidentifikasi topik dalam teks report
 - Mengidentifikasi ide pokok dalam teks report

- Mengidentifikasi informasi yang dibutuhkan/ informasi spesifik dari teks report
- Memahami kosakata yang terdapat dalam esei pendek sederhana berbentuk teks report
- Menyimpulkan informasi yang terdapat dalam teks report

Q. Tujuan Pembelajaran :

Pada akhir pembelajaran diharapkan:

- Siswa mampu membaca dan memahami teks report
- Siswa mampu mengidentifikasi topik dalam teks report
- Siswa mampu mengidentifikasi ide pokok dalam teks report
- Siswa mampu mengidentifikasi informasi yang dibutuhkan/ spesifik informasi dari teks report
- Siswa mampu memahami kosakata yang terdapat dalam esei pendek sederhana berbentuk teks report
- Siswa mampu menyimpulkan informasi yang terdapat dalam teks report

R. Materi Pembelajaran : Teks monolog berbentuk teks report

S. Metode Pembelajaran : Conventional Method

T. Langkah-langkah Kegiatan

4. Kegiatan Pendahuluan :

- Guru memasuki kelas dengan mengucapkan salam dan menyapa siswa dengan bahasa Inggris.
- Guru meminta siswa untuk membuka kelas dengan berdo'a.
- Guru mengabsen siswa.
- Guru memberi motivasi siswa terkait pentingnya kompetensi pelajaran yang akan dikuasai
- Guru menjelaskan secara ringkas tentang materi yang akan dipelajari.

5. Kegiatan Inti :

1. Guru mengaktifkan background knowledge siswa mengenai teks report atau topik yang akan dipelajari dalam teks report
2. Guru memberikan teks berbentuk teks report kepada siswa
3. Guru menyuruh siswa untuk membaca teks berbentuk teks report tersebut
4. Guru menyampaikan penjelasan mengenai pengertian report teks, generic structures, language features dan purpose dari report teks
5. Guru menyuruh siswa untuk menerjemahkan teks report tersebut kedalam bahasa Indonesia

6. Guru memberikan beberapa soal kepada siswa berupa latihan untuk mengidentifikasi topik, main ideas, informasi yang dibutuhkan/ spesifik informasi, memahami kosakata dan memberi kesimpulan dari sebuah teks berbentuk teks report

6. Kegiatan Penutup :

- Guru memberi kesimpulan pelajaran
- Guru memberikan tugas kepada siswa
- Guru meminta siswa mengakhiri kelas dengan berdoa

U. Sumber Belajar :

- Buku-buku yang relevan
- Kamus (Inggris-Indonesia/ Indonesia Inggris)

V. Penilaian :

Indikator Pencapaian Kompetensi	Teknik Penilaian	Bentuk Instrument	Instrument Soal
5. Mengidentifikasi main idea dalam teks report	Test Tertulis	Mutiple choice	Choose the correct answer by crossing a, b, c or d.
6. Mengidentifikasi informasi secara detail dalam teks report			
7. Mengidentifikasi informasi spesifik dari teks report			
8. Mampu menemukan			

makna kosakata yang terdapat dalam esei pendek dan sederhana berbentuk teks report			
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3. Pedoman Penilaian :

- d. Jumlah skor maksimal keseluruhan adalah 100
- e. Setiap jawaban benar diberi skor 5
- f. Jumlah skor keseluruhan $5 \times 20 = 100$ (test tulis)

4. Rubrik Penilaian :

Uraian	Skor
Jawaban Benar	5
Jawaban Salah	0

Padangsidempuan, 2018

Mengetahui,
Teacher of English

Researcher

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Appendix 3

LEARNING MATERIAL FOR EXPERIMENTAL CLASS

Text 1

Read the text below and answer the question!

Kangaroo

A kangaroo is an animal found only in Australia, although it has a smaller relative, called wallaby, which lives on the Australian island of Tasmania and also in New Guinea.

Kangaroos eat grass and plants. They have short front legs, but very long and very strong back legs and a tail. These they use for sitting up on and for jumping. Kangaroos have been known to make forward jumps of over eight meters, and leap across fences more than three meters high. They can also run at speeds of over 45 kilometers per hour.

The largest kangaroos are the Great Grey Kangaroo and the Red Kangaroo. Adults grow to a length of 1.60 meters and weigh over 90 kilos.

Kangaroos are marsupials. This means that the female kangaroo has an external pouch on the front of her body. A baby kangaroo is very tiny when it is born, and it crawls at once into this pouch where it spends its first five months of life.

1. Where is Kangaroo's smaller relative found?

Answer: Australian island of Tasmania and New Genuine

2. What is the meaning of the "marsupials" word?

Answer: An animal which has an external pouch in front

3. " a baby kangaroo is very tiny when it is born, and it crawls at once into this pouch where it is spends..." (paragraph 4)

What is meaning of word "pouch"?

Answer: a back like pocket of skin on kangaroo

4. What is kangaroo using for sitting up on and for jumping? (paragraph 2)

Answer: leg

5. What is the main idea of the fourth paragraph?

Answer: kangaroos are marsupials

Text 2

Read the text below and answer the question!

Wingo Island

The Island of Wingo is by the island of Singa. In the water around Wingo Island, there are hundreds of sharks. They are so many that the water bubbles like a whirlpool. People can only get to Wingo Island by boat. The boat has a rocket on it. The rocket takes people over the sharks and onto the island.

Wingo Island does not have sand but it has green moss. At night the moss sparkles like stars. Tall stars called Fruji grow everywhere. The Fruji trees have purple leaves at the top and yellow fruit all over them. When a fruit falls off, another tree grows in a minute.

The weather on Wingo Island is very hot but at twelve o'clock, every day, it rains. Sometimes, there are windstorms. They happen when too many animals fly around at the same time.

People who stay on Wingo Island sleep in a big-gloo. It is like an igloo but it is on long poles. It has a ladder to get up and a slide to come down. The big-gloo has a moss bed, chairs, and tables that are made of Fruji trees.

There is no television on Wingo Island. So is the telephone and computer. It is a place to listen to the leaves whispering. It is a place to lie on soft green moss and look at the clouds. It is really a place to dream.

1. What is Fruji in the text above?

Answer: name of tree on Wingo Island

2. What causes windstorms at Wingo?

Answer: animals

3. Where do the people of the island live in?

Answer: in the big-gloo

4. What is sparkling like a star at night?

Answer: green moss

5. What is the main idea of the fourth paragraph?

Answer: people who stay on Wingo Island sleep in a big-gloo

Appendix 4

LEARNING MATERIAL FOR CONTROL CLASS

Text 1

Read the text below and answer the question!

For many years people believed that the cleverest animals after man were the chimpanzees. Now, however, there is proof that dolphins may be even clever than these big apes.

Although a dolphin lives in the sea it is not a fish. It is a mammal. It is in many ways, therefore, like a human being.

Dolphins have a simple language. They are able to talk to one another. It may be possible for man to learn how to talk to dolphins. But this will not be easy because dolphins cannot hear the kind of sounds man can make. If man wants to talk to dolphins, therefore, he will have to make a third language which both he and the dolphins can understand.

Dolphins are also very friendly toward man. They often follow ships. There are many stories about dolphins guiding ships through difficult and dangerous waters.

1. What is the topic of the text?

Answer: a dolphin

2. What is the main idea of the third paragraph?

Answer: dolphins have a simple language

3. What is dolphin animal's kind?

Answer: a mammal

4. We can talk with dolphin but it is not ease because.....

Answer: dolphins cannot hear the kind of sounds

5. Dolphins are also very friendly toward man.

What is the meaning of word 'friendly'?

Answer: easy to talk with

Text 2

Read the text below and answer the question!

Psychologist and educators classify the goals of learning into three areas. They are the cognitive area, the psychomotor area, and the affective are. The cognitive area emphasizes thought processes. This area includes knowledge, intellectual skills, and abilities. The examples of this area are understanding, remembering, problem solving, and creating. Intellectual skills consist of comprehension, application, analysis, synthesis, and evaluation. Knowledge refers to recognition or recall of specific information. The psychomotor area emphasizes muscular or motor skills, manipulation of materials or objects, certain objects. Courses in handwriting, speech, and physical education are examples of degree of acceptance or rejection. Attitudes, appreciation, and values belong to the objectives of education.

The performance of learners determines the effectiveness of instruction. Schools evaluate the performance of learners through tests. There are two types of test of learning ability and achievement tests. Tests of learning ability evaluate the general ability of students. Achievement tests evaluate specific or vocational areas. Scores of achievement tests indicate the student's achievement in a certain area. Essay examinations and multiplechoice tests are examples of achievement tests.

6. What is the main idea of the first paragraph?

Answer: Psychologist and educators classify the goals of learning into three areas

7. There are three areas of psychologist and educators, they are....?

Answer: The cognitive, Intellectual skills and psychomotor area

8. Attitudes, appreciation and value are belonging to....?

Answer: objectives of education.

9. There are two types of test, they are....?

Answer: learning ability and achievement test

10. Score of achievement test indicate the student's achievement in certain area.

What is the meaning of word 'achievement'?

Answer: accomplishment

Appendix 5

INSTRUMENT FOR PRE-TEST

Read the following text and answer the questions 1

Antibiotic

Antibiotic is kind of compounds both natural and synthetic, which has function to press or stop a process of organism's growth, particularly bacteria. Antibiotic is used to treat bacterial infections and used as a tool for genetic engineering in biotechnology. Antibiotic works as pesticides by pressing or break the chain of bacteria's metabolism. Nevertheless, antibiotic is different with disinfectant in the process to kills bacteria. Disinfectant kills bacteria by creating an unnatural environment for germs to live.

In terms of treatment, antibiotics dubbed as "magic bullet "because antibiotic kills instantly without injuring its sufferers. Although antibiotic is good for medication, it is not effective in handling infection caused by viruses, fungi, or other nonbacterial.

Antibiotic has diverse types based on their effectiveness against bacteria. There are antibiotics that target gram- negative or gram- positive bacteria and some antibiotic has wider spectrum. The effectiveness depends on location of the infection and the ability of antibiotic to reach location of the infection. Based on how to use, antibiotics are divided into two that are oral antibiotics and antibiotic intradermal. An oral antibiotic is used by mouth while antibiotic intradermal used through anus. Intradermal antibiotic is used for serious cases.

1. Which one is not true?
 - a. Antibiotic is used to treat bacterial infections
 - b. Antibiotic is not same with disinfectant
 - c. Antibiotic kills instantly without injuring its sufferers
 - d. Antibiotic is effective in handling infection caused by viruses

Read the following text and answer the questions 2-5

Pharmacists are the professionals who dispense medicines to the patients, as prescribed by the medical expert. In most of the cases, the experienced pharmacists can even prescribe some better drugs and medicines to the patients. One of the most important pharmacist job descriptions is the management of medicines and drugs in health care units and hospitals. The pharmacist job

description also includes assisting the patients, advising the medical experts and helping the patients by recommending the right medicine.

Some of the job duties of a pharmacist are as follows; give advice and assist doctors or surgeons in matters relating to dosages and prescriptions to the patient. Monitor and analyze the health of the patient, with respect to the drugs that have been given to the patient. Answer the queries of the patients about the probable side effects and benefits of the drug therapy. Seek immediate help from the doctor in case the drug shows some side effects on the patient.

Recommend drugs to visitors with minor ailments.

2. What does the text tell us about?
 - A. A pharmacist
 - B. A drug therapy
 - C. A medical expert
 - D. A doctor and surgeon
3. Which one is usually done by a pharmacist?
 - A. Giving immediate help to the patients
 - B. B. Recommending better drugs to patients
 - C. Helping surgeon while doing an operation
 - D. Giving drugs to patients with major ailments
4. Who has responsibility to recommend drugs to visitors with minor ailments?
 - A. A doctor
 - B. A surgeon
 - C. A pharmacist
 - D. A medical expert
5. What is the main idea of paragraph two?
 - A. A pharmacist has some duties.
 - B. A pharmacist and doctor work cooperatively.
 - C. A pharmacist recommends drugs to the patient.
 - D. Doctor and surgeon give prescriptions to the patient

Read the following text and answer the questions 6-8

Bees

Bees are flying insects closely related to wasps and ants, and are known for their role in pollination and for producing honey and beeswax. There are nearly 20,000 known species of bees in nine recognized families though many are undescribed and the actual number is probably higher. They are found on every continent except Antarctica, in every habitat on the planet that

contains insect-pollinated flowering plants.

Bees have a long proboscis (a complex "tongue") that enables them to obtain the nectar from flowers. They have antennae almost universally made up of 13 segments in males and 12 in females, as is typical for the super family. Bees all have two pairs of wings, the hind pair being the smaller of the two; in a very few species, one sex or caste has relatively short wings that make flight difficult or impossible, but none are wingless.

The smallest bee is *Trigona minima*, a stingless bee whose workers are about 2.1 mm (5/64") long. The largest bee in the world is *Megachile pluto*, a leafcutter bee whose females can attain a length of 39 mm (1.5"). Members of the family Halictidae, or sweat bees, are the most common type of bee in the Northern Hemisphere, though they are small and often mistaken for wasps or flies.

6. What is the text about?
 - A. Describing bees in general.
 - B. Explaining bees in Antarctica.
 - C. Telling the habitat of the bees.
 - D. Giving information about bees in the Northern Hemisphere.
7. What is the main idea of paragraph one?
 - A. Bees live on every continent.
 - B. Bees belong to flying insects.
 - C. Bees produce honey and beeswax.
 - D. Bees only live with insect-flowering plants.
8. Which of the following sentences describes the physical appearance bees?
 - A. None has wings.
 - B. It has 13 antennae.
 - C. Its length is 39 mm.
 - D. Its tongue is complex.

Read the following text and answer the questions 9-10

Jellyfish

Jellyfish are not really fish. They are invertebrate animals. This means that unlike fish or people, they have no backbones. In fact, they have no bones at all.

Jellyfish have stomachs and mouths, but no heads. They have nervous systems for sensing the world around them, but no brains. They are made almost entirely of water, which is why you can look through them.

Some jellyfish can glow in darkness by making their own light. The light is made by a chemical reaction inside the jellyfish. Scientists believe jellyfish glow for several reasons. For example, they may glow to scare away predators or to attract animals they like to eat.

Most jellyfish live in salt water, apart from a few types that live in fresh water. Jellyfish are found in oceans and seas all over the world. They live in warm, tropical seas and in icy waters near the North and South poles.

9. Based on the text, we know that....
- A. They belong to invertebrate animals. B. They have heads like other animals.
C. Their brain helps them find the food. D. They cannot live in fresh water.
10. What is the text about?
- A. Jellyfish. B. Kinds of all fish.
C. All invertebrate animals. D. Some kinds of sea animals.

Read the following text and answer the questions 11-13

Komodo Dragons

Komodo dragon is a member of the monitor family, Varanidae. It is the world's largest living lizards. It grows to be 10 feet (3 meters) long and weighs up to 126 kg and belong to the most ancient group of lizards still alive.

It is found mainly in the island of Komodo and on other small islands, Rinca, Padar, and Flores. The natives call the dragon, ora, or buaya darat (land crocodile).

The Komodo dragon has a long heavy tail, short, strong legs, and rough skin. It is covered with small dull, colored scales. It can sprint at up 18 km per hours, but only for short distances. When it opens its wide red mouth, it shows row of teeth like the edge of a saw.

Komodo dragons are good swimmers and may swim the long distance from one island to another. Like other lizards, they swim by undulating their tails, and their legs held against their body

The Komodo dragon is totally carnivorous. It hunts other animals during the day. It hunts deer, wild pigs, water buffaloes, and even horses. While smaller komodos have to be content with eggs, other lizards, snakes and rodents. Komodo dragons are cannibals. The adult will prey on the young one as well as the old and sick dragons. Lizard digs a cave with its strong claws in the cave at night.

11. The main idea of paragraph 5 is ...
- A. komodo dragons feed on young dragons.
 - B. komodo dragons get their food by hunting.
 - C. komodo dragons are carnivorous and also cannibals.
 - D. komodo dragons are cannibals because they hunt other animals.
12. Which of the following is not the characteristic of a komodo dragon?
- A. Rough skin
 - B. Strong claws
 - C. A long heavy tail
 - D. Rows of red teeth
13. Komodo dragons are cannibals because ...
- A. They hunt deer, wild pigs, water buffaloes and even horses.
 - B. They feed on eggs, lizards, snakes and rodents.
 - C. They prey on young ones as well as old and sick dragons
 - D. They eat anything they meet.

Read the text and answer questions 14-16

DINOSAURS

Dinosaurs were a type of lizards. They lived from about 230 million to about 65 million years ago. In 1842, Sir Richard Owen created the word dinosaur. It came from Greek words deinos, meaning “terrible” and sauros, meaning “lizard”. Dinosaurs lived on earth for about 140 million years.

During the dinosaurian era, the days were short. The sun was not as hot as it is today. On earth there was only one big continent and one big ocean. The name of the continent was pangea (all lands) and the name of the ocean was panthallassa (all seas).

There were many kinds of dinosaurs. Some of them were very big and some others were small. Some dinosaurs ate leaves and some others ate meat. Some dinosaurs could fly. What happened to dinosaurs? Dinosaurs became extinct because there was a large comet hitting the earth. The comet caused fire and it killed the trees. Dinosaurs could not eat because there were no trees on earth and finally they died and became extinct.

14. What were the days like during the dinosaurian era?
- A. Long
 - B. Cold
 - C. Warm
 - D. Short
15. What is the main idea of paragraph 3?
- A. There were many kinds of dinosaurs
 - B. Some dinosaurs could fly in the sky
 - C. Many dinosaurs were small in form
 - D. Dinosaurs ate leaves and meat
16. The writer wrote the text ...
- A. To describe what the dinosaurs look like
 - B. To show the steps how to measure dinosaurs
 - C. To inform people about dinosaurs and their lives
 - D. To amuse people by showing the dinosaurs' power

Read the following text to answer questions number 17-18

Jasmine is a native flower to some tropical areas in South Asia, Africa and Australia. In India, some varieties of Jasmine are used for religious purposes.

The flower can grow up to 3 meters high and 2 meters wide. It releases its fragrance mostly after the sun sets especially nearing the full moon. Therefore, it is often associated with soothing night- time moods.

The planting of Jasmine is started by putting some cuttings in 3 inch posts within 4 weeks. After the roots grow, they are put into 6 inch pots. The soil in the pots should be kept moist but possible for the water to go through it for optimum growth.

There are some important advantages of Jasmine. In medication, this flower is often used for soothing headaches, stimulating brain, and restoring balance. Its extract is also widely used in the making of perfume.

17. When does jasmine release the most fragrance?
- A. In the morning
 - B. In the evening
 - C. In the afternoon
 - D. At dawn
18. The underlined word in " ... it is often associated with ...", is closest in meaning...
- A. Attached
 - B. Connected
 - C. Compared
 - D. Propagated

Read the following text and answer the questions 19-20

An Elephant

An elephant is the largest and strongest animals. It is a strange looking animal with its thick legs, huge sides and backs, large hanging ears, a small tail, little eyes, long white tusks and above all it has a long nose, the trunk.

The trunk is the elephant's peculiar feature, and it has various uses. The elephant draws up water by its trunk and can squirt it all over its body like a shower bath. It can also lift leaves and puts them into its mouth. In fact the trunk serves the elephant as a long arm and hand. An elephant looks very clumsy and heavy and yet it can move very quickly.

The elephant is a very intelligent animal. Its intelligence combined with its great strength make it a very useful servant to man and it can be trained to serve in many ways such as carry heavy loads, hunt for tigers and even fight.

19. The most distinguishing characteristic of an elephant is.....

- A. Its clumsiness
- B. Its thick legs
- C. Its large body
- D. Its long nose

20. "The trunk is the elephant's peculiar feature....(Paragraph2)

The underline word close in meaning to

- A. large
- B. strange
- C. tough
- D. smooth

**Padangsidimpuan,
Validator**

2018

**Zainuddin, S.S., M.Hum
NIP. 19760610 200801 1 016**

Appendix 6

INSTRUMENT FOR POST-TEST

Read the following text to answer questions number 1

The white pelican is one of the most successful fish-eating birds.

The success is largely due to its command hunting behaviour. A group, perhaps two-dozen birds, will gather in a curved area some distance offshore. The birds then begin to move forward towards the shore, beating the water furiously with their wings, driving the fish before them.

When the water is shallow enough for the birds to reach the fish, the formation breaks up as each bird dips its bill into the water to scoop up its meal. As the birds lift their head, the water drains from its bill leaving the fish which are then swallowed.

Pelicans are among the oldest group of birds, fossils of this genus have been found dating back 400 million years.

1. What is the main idea of the fourth paragraph?
 - A. Pelicans is one of the successful fish-eating birds
 - B. The fossils of Pelicans have been found dating back 400 million years
 - C. Pelicans is hingest animal
 - D. Pelicans are among oldest group of birds

Read the following text to answer questions number 2-3

The Octopus is an ocean creature with eight effective feet which it utilizes as hands. These are called tentacles or limbs. "Octopus" originates from two words that have meaning "eight feet".

The octopus, the squid and the cuttlefish fit in with the same family that has no outside shells. Their bodies are secured totally with skin. Along these lines the assortment of an octopus is delicate. It would appear that a huge blow up. A completely developed octopus can be as huge as 8,5 meters from the tip of one arms to the tip of another. It can weigh as much as 45 kilograms.

Other than utilizing its tentacles or limbs to catch little fish, ocean plants, crab and lobsters. The octopus additionally utilizes them against its adversaries. The octopus wraps its appendages around the exploited person and crushes it before eating it.

The octopus escapes from its adversaries by giving out a thick dull liquid to obscure the water. It can likewise change the color of its body to match its surroundings. It escapes its enemis by doing this.

2. What is the main idea of the third paragraph?
 - A. The octopus called tentacles or limbs
 - B. The octopus is utilizing of their tentacles or limbs to catch and against their adversaries

- C. The octopus, the squid and the cuttlefish fit in with the same family that has no outside shells
 - D. The octopus escapes from its adversaries by giving out a thick dull liquid to obscure the water
3. What is the text about?
- A. Octopus
 - B. Eight feet
 - C. Skin of octopus
 - D. Types of octopus
 - E. Tentacles

Read the following text to answer questions number 4-5

The Classification of Bird

Birds belong to a class of warm blooded vertebrate animals with feather covered bodies. Next to the mammals, birds are the most important group of land-living vertebrates. All birds have feathers, although in some types, particularly those that can not fly, the normal structure of the feathers may be much modified and be downy, woolly, or straw like. The forelimbs of birds are modified into wings. The bony part of the tail, except in the very earliest fossil birds, is very short, and the visible tail is composed of feathers only. The teeth are absent except in some fossil forms. As in mammals-the only other group of warm blooded animal-the circulation is highly perfected so that there is no mixing of arterial and venous blood, but the arrangement of veins and arteries by which this is accomplished, is different in the two groups. Birds have keen hearing, although they have no external ears. The sense of sight also is very keen, but the sense of smell is weak or lacking, except in a small few vultures and other birds.

4. The fore limbs of birds are modified into.....
- A. Eyes
 - B. Legs
 - C. Wings
 - D. Hand
5. Which of the following is NOT possessed by birds?
- A. Feathers
 - B. Teeth
 - C. Tails
 - D. Ears

Read the following text to answer questions number 6-7

Remote Sensing

Remote sensing is the acquisition of information about an object or phenomenon, without making physical contact with the object. In modern usage, the term generally refers to the use of aerial sensor technology to detect and classify objects on Earth (both on the surface, and in the

atmosphere and ocean) by means of propagated signals (e.g. electromagnetic radiation emitted from aircraft or satellites).

There are two main types of remote sensing: passive remote sensing and active remote sensing. Passive sensors detect natural radiation that is emitted or reflected by the objects or surrounding area being observed. Reflected sunlight is the most common source of radiation measured by passive sensors. Examples of passive remote sensors include film photography, infra-red, charge-coupled devices, and radiometers. Active collection, on the other hand, emits energy in order to scan objects and areas whereupon a sensor then detects and measures the radiation that is reflected or backscattered from the target. RADAR and LIDAR are examples of active remote sensing where the time delay between emission and return is measured, stabilizing the location, height, speed and direction of an object.

6. What is the main idea of the second paragraph?
 - A. The energy in sunlight is important for remote sensing
 - B. Remote sensing is the acquisition of information about an object or phenomenon
 - C. The source of energy radiated for sensing determines whether it is the active or passive type
 - D. There are two types of remote sensing; passive and active remote sensing
7. Remote sensing is used to know...
 - A. An object or phenomenon, without making physical contact with the object
 - B. An object or phenomenon, with making physical contact with the object
 - C. Characteristics of someone, without making physical contact with the object
 - D. Characteristics of someone, with making physical contact with the object
 - E. Mental of someone

Read the following text and answer the questions 8-10

Gardenia plants

Gardenia plants are popular for the strong sweet scent of their flowers. Gardenia is the national flower in Pakistan. In Japan and China, the flower is called Kuchinashi (Japanese) and Zhi zi (Chinese).

Gardenia plants are evergreen shrubs. Their small trees can grow to 1 - 5 meters tall. The leaves are 5 - 50 centimeters long and 3 - 25 centimeters broad, dark green and glossy with a leathery texture. The flowers are in small groups, white, or pale yellow, with 5-12 lobes (petals) from 5-12 centimeters diameter. They usually bloom in mid- spring to mid-summer. Many species have strong aroma.

To cultivate gardenia as a house plant is not easy. This species can be difficult to grow because it originated in warm humid tropical areas. It demands high humidity and bright (not direct) light to thrive. It flourishes in acidic soil with good drainage and thrives on 20° – 23° C during the day and 15° – 16° C in the evening. Potting soils developed specifically for gardenias are available. It grows no larger than 18 inches in height and width when grown indoor. In

climates where it can be grown outdoors, it can reach the height of 6 feet. If water hits the flowers, they will turn brown.

8. How tall is a gardenia tree?
A. 3 - 25 cm. B. 5-12 cm.
C. 5-50 cm D. 1-5 m
9. What is the main idea of the last paragraph?
A. It is easy to plant a gardenia tree.
B. A gardenia plant needs high humidity.
C. It's not easy to plant gardenia as a house plant.
D. A good drainage is important for gardenia plant.
10. From the text we know that
A. people don't like the strong scent of the flower
B. Gardenia is widespread in Asia
C. the flower is easy to plant
D. the flower is expensive

Read the following text and answer the questions 11-13

Spiders are not insects. They are arachnids. Arachnids have four pairs of legs but only two body parts. Insects have three pairs of legs and three body parts. Spiders have two to four pairs of eyes. They can see extremely well.

Spiders eat small insects such as flies and mosquitoes, and sometime bit people. When a spider bites insect, it does not kill the insect immediately. Instead a special poison passes through its fangs, and this poison paralyzed the body to the unlucky insects.

Most spiders make their own homes. They do this with a special substance produced by their bodies. In the corner of some rooms it is possible to find a spider's web where the spider is waiting for its next dinner guest.

11. The spider has special teeth called
A. poison C. Arachnids
B. fangs D. quest
12. What is NOT the difference between spider and insect?
A Insects have three pairs of legs B Spiders have four pairs of legs
C Insects' home are like spiders. D Insects have three body parts
13. This word "web" in paragraph three means....
A a spider's poison C a spider's leg
B spider's eyes D a spider's house

Read the following text to answer questions number 14-16

An eclipse is an astronomical event that occurs when one celestial object moves into the shadow of another. The term is most often used to describe either a solar eclipse, when the

Moon's shadow crosses the Earth's surface, or a lunar eclipse, when the Moon moves into the shadow of Earth.

Eclipses may occur when the Earth and Moon are aligned with the Sun, and the shadow of one body cast by the Sun falls on the other. So at New Moon (or rather Dark Moon), when the Moon is in conjunction with the Sun, the Moon may pass in front of the Sun as seen from a narrow region on the surface of the Earth and cause a solar eclipse. At Full Moon, when the Moon is in opposition to the Sun, the Moon may pass through the shadow of the Earth, and a lunar eclipse is visible from the night half of the Earth.

An eclipse does not happen at every New or Full Moon, because the plane of the orbit of the Moon around the Earth is tilted with respect to the plane of the orbit of the Earth around the Sun, so as seen from the Earth, when the Moon is nearest to the Sun (New Moon) or at largest distance (Full Moon), the three bodies usually are not exactly on the same line.

14. When does lunar eclipse happen?
 - A. In the morning
 - B. In the afternoon
 - C. In the evening
 - D. In the midday
15. What is the main idea of third paragraph?
 - A. We can see the surface of the Moon from the Earth
 - B. The sun is the biggest planet in our solar system
 - C. An eclipse never happens at New or Full Moon
 - D. The sun and the moon rotate on the same line
16. What will happen if the moon's shadow crosses the earth's surface? There will be
 - A. A lunar eclipse
 - B. Solar eclipse
 - C. New Moon
 - D. Full Moon

Read the following text to answer questions number 17-20

Durian

Durian is the name of tropical vegetation which comes from south east asia. It is also the name of fruit. This name is taken from its skin characteristics which is similar with "duri" or thorn. Its famous name is King of Fruit. Durian is a controversial fruit because many people like it but many of them hate its smell.

Because the strong smell of it, and it tends to smell rotten, some transportation companies forbid people bring durian, for example in the plane, public transportation or into the hotel. However, many people still like durian. Durian is quite expensive.

Durian has various kinds. There are 20 species of durian in Indonesia. Nine of them can be eaten. Durian fruit is eaten when it is in the fresh condition. In general this fruit is sweet and very nutritious because it consists of carbohydrate, fat, protein, and mineral.

In the harvest season of durian, this fruit is everywhere, especially in its production centre region. Traditionally, the flesh of the fruit can be cooked with sugar and it becomes “lempok or dodol” or it can be fermented to be tempoyak. The taste of tempoyak is sour and it is usually eaten with sambal or to be additional ingredient to cook fish.

Sometimes, durian can be mixed with other traditional cake ingredients like gelamai or jenang. It is also mixed in the desert with glutinous rice. In this modern era, the taste of durian is also added in candy, ice cream, milk, and other kind of fresh drink.

The seeds of durian can be eaten as snack after being boiled or roasted. The raw seed cannot be eaten because it is poisonous. It consists of cyclopropene, a poisonous material. Some of durians are sometimes used as traditional medicine materials. Its root is used as fever medicine. The leaves can be mixed with Acorus calamus leaves and it is used to cure infection on nails. The skin of the fruit can be used to cure skin diseases and constipation. Some of Javanese societies use the skin of durian to shoe mosquito and put it on the corner of the room. The durian fruit is a good source of antioxidant vitamin-C. It can help the human body develop resistance against infectious disease.

Moreover, it contains minerals like manganese, copper, iron and magnesium which is utilized by the body for the antioxidant enzyme. Copper is needed in the production of red blood cells. Iron is needed for red blood cell formation. Fresh durian fruit is the source of potassium which is an important electrolyte inside cells and body fluids that control heart rate and blood pressure. Further, it also contains high levels of essential amino acid, tryptophan which metabolizes into serotonin and melatonin in human body.

Durian flesh is also exported in the form of canned durian. In Bangkok, durian paste is mixed with pumpkin. Malays keep the flesh in salt in order it can still be eaten with rice, even though it has been a year. They always have their own way to enjoy durian.

17. Beside consist of carbohydrate, durian also consist...
 - A. Fat
 - B. Vitamin A
 - C. Vitamin B12
 - D. Fiber
18. What will happen if we eat uncooked seed of durian?
 - A. We will be poisoned because the large of seed is too big
 - B. We will be poisoned because the large of seed is not delicious
 - C. We will be poisoned because that's just for animal
 - D. We will be poisoned because it consists of isomerization
19. What kind of mineral in durian which needed in the production of red blood cells?
 - A. Iron
 - B. Copper
 - C. Manganese
 - D. Magnesium

20. What is the main idea of the last paragraph?

- A. Durian flesh
- B. Canned durian
- C. Exported durian
- D. The ways to enjoy durian

Padangsidimpuan,

2018

Validator

Zainuddin, S.S., M.Hum

NIP. 19760610 200801 1 016

Appendix 7

Key Answer of Pre-Test

1. C
2. A
3. B
4. C
5. A
6. A
7. B
8. D

9. A
10. A
11. C
12. D
13. C
14. D
15. A
16. C

17. B
18. D
19. D
20. B

Key Answer of Post-Test

1. A
2. B
3. A
4. C
5. D
6. D
7. A
8. D

9. C
10. B
11. B
12. C
13. D
14. C
15. C
16. B

17. A
18. D
19. B
20. D

Appendix 8

Validity of Pre Test

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	ΣXt	ΣXt ²	
1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	22	484	
2	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	20	400	
3	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	1	1	21	441	
4	1	1	1	1	1	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	19	361
5	1	1	0	1	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	7	49	
6	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	21	441
7	0	1	1	0	0	0	1	0	1	1	0	1	1	1	0	1	1	0	1	1	1	0	0	1	1	0	15	225
8	1	1	1	0	1	0	1	1	0	0	0	0	1	1	1	0	0	1	0	1	0	0	0	1	1	12	144	
9	0	1	0	0	1	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	0	1	1	1	18	324
10	1	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	15	225	
11	1	1	1	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	0	0	1	1	0	10	100	
12	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	22	484	
13	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	0	0	0	1	16	256	
14	1	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	1	1	0	0	1	0	1	1	1	19	361	
15	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	22	484	
16	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	21	441
17	1	0	1	1	1	1	1	0	1	0	0	1	1	1	0	1	1	0	0	1	1	1	1	1	1	17	289	
18	1	1	1	1	1	0	1	0	1	0	0	1	0	1	1	1	0	0	1	1	1	0	0	0	0	1	14	196
19	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	22	484
20	0	0	1	1	0	0	1	0	1	1	0	1	1	1	0	1	0	1	1	1	1	1	1	1	1	17	289	
21	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	0	0	0	1	1	20	400
22	0	0	1	1	0	1	1	0	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	0	1	1	17	289
23	1	1	1	0	1	0	1	0	0	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	19	361	
24	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	4	16	
25	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	0	1	1	1	1	1	1	21	441	
26	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	5	25	
27	0	0	1	1	1	0	0	0	1	0	1	0	0	1	0	0	1	1	1	1	1	1	0	0	0	1	12	144
28	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	21	441	
29	1	1	1	0	1	0	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	0	1	1	1	1	18	324
30	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	1	0	0	1	1	0	19	361	
N=30	23	22	24	21	20	13	25	21	23	19	14	21	25	22	18	22	24	22	19	23	14	7	19	23	23	506	9280	
p	0.7	0.7	0.8	0.7	0.6	0.4	0.8	0.7	0.7	0.6	0.4	0.7	0.8	0.7	0.6	0.7	0.8	0.7	0.6	0.7	0.4	0.2	0.6	0.7	0.7	ΣXt	ΣXt ²	
q	0.2	0.3	0.2	0.3	0.4	0.6	0.2	0.3	0.2	0.4	0.6	0.3	0.2	0.3	0.4	0.3	0.2	0.3	0.4	0.2	0.6	0.8	0.4	0.2	0.2			

Appendix 11

Validity of Post Test

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	$\sum X_t$	$\sum X_t^2$	
1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	22	484
2	1	1	1	1	1	0	1	1	0	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	0	19	361
3	1	1	1	1	0	0	1	0	0	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	1	0	12	144
4	0	1	1	1	1	0	0	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	20	400
5	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	22	484
6	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	21	441
7	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	19	361
8	1	1	1	1	1	0	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	0	1	1	1	20	400
9	1	1	1	1	1	0	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	21	441
10	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	22	484
11	0	1	1	1	1	0	1	1	0	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	19	361
12	1	1	1	1	1	0	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0	20	400
13	1	1	1	1	1	0	1	1	0	1	1	1	1	1	0	0	1	1	0	0	1	0	1	0	1	1	17	289
14	1	0	1	1	0	0	1	1	0	0	1	0	1	1	0	0	1	1	1	0	1	0	1	0	1	1	14	196
15	0	1	1	1	1	0	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	20	400
16	1	1	1	0	1	0	1	1	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	1	1	1	14	196
17	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	22	484
18	1	1	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	17	289
19	0	0	0	0	0	1	1	0	1	0	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	1	14	196
20	1	1	1	0	1	1	1	1	0	1	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	19	361
21	1	1	1	1	1	0	1	1	0	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	20	400
22	1	1	1	0	1	1	0	1	0	1	1	0	0	0	0	0	0	0	1	0	1	1	1	0	0	1	13	169
23	1	0	0	0	0	0	1	1	0	1	1	1	1	0	0	0	1	0	1	0	1	1	1	1	1	1	14	196
24	0	1	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	13	169
25	1	0	1	0	0	0	1	1	0	1	1	1	1	0	0	0	1	0	1	0	1	1	1	1	1	1	15	225
26	1	0	0	0	1	0	0	1	0	1	1	1	1	1	0	0	1	0	1	1	0	1	0	1	1	1	14	196
27	0	1	1	0	0	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	19	361
28	1	0	1	0	0	1	1	1	0	1	0	1	1	1	0	0	1	1	0	0	1	0	1	1	1	1	15	225
29	1	1	1	0	0	1	0	1	1	0	0	1	1	0	0	0	0	0	1	0	1	1	0	0	1	1	12	144
30	0	0	0	0	1	1	1	0	1	0	0	0	0	1	0	1	0	1	0	1	0	1	1	1	1	1	11	121
N=30	22	22	24	17	21	10	25	26	5	24	25	25	22	22	6	5	23	23	23	24	27	24	24	25	26	520	9378	
p	0.7	0.7	0.8	0.5	0.7	0.3	0.8	0.8	0.1	0.8	0.8	0.8	0.7	0.7	0.2	0.1	0.7	0.7	0.7	0.8	0.9	0.8	0.8	0.8	0.8	$\sum X_t$	$\sum X_t^2$	
q	0.2	0.2	0.2	0.4	0.3	0.6	0.1	0.1	0.8	0.2	0.1	0.1	0.2	0.2	0.8	0.8	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1			

Appendix 9

$$\text{Calculation of } r_{\text{pbi}} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

A. Calculation of Pre-test

1. Mean score from score total (M_t)

$$M_t = \frac{\sum X_t}{N}$$

$$M_t = \frac{506}{30} = 16.86$$

2. Standard Deviation (SD_t)

$$SD_t = \sqrt{\frac{\sum X_t^2}{N} - \left(\frac{\sum X_t}{N}\right)^2}$$

$$SD_t = \sqrt{\frac{9280}{30} - \left(\frac{506}{30}\right)^2}$$

$$SD_t = \sqrt{309.3 - 16.86^2}$$

$$SD_t = \sqrt{309.3 - 284.2}$$

$$SD_t = \sqrt{25.1} = 5.00$$

3. Mean Score (M_p)

Item 1

$$M_{\text{pl}} = \frac{\text{total score of students' score that true item answer}}{n_1}$$

$$M_{\text{pl}} = \frac{22+20+21+19+7+21+12+15+10+22+16+19+22+17+14+22+20+19+21+21+18+19}{23}$$

$$M_{\text{pl}} = \frac{418}{23} = 18.17$$

Item 2

$$M_{\text{pl}} = \frac{\text{total score of students' score that true item answer}}{n_2}$$

$$M_{\text{pl}} = \frac{22+21+19+7+21+15+12+18+15+10+16+19+22+21+14+22+20+19+21+21+18+19}{22}$$

$$M_{\text{pl}} = \frac{392}{22} = 17.81$$

Item 3

$$M_{\text{pl}} = \frac{\text{total score of students' score that true item answer}}{n_3}$$

$$M_{\text{pl}} = \frac{22+21+19+21+15+18+10+22+16+19+22+21+17+14+22+17+20+17+20+17+19+21+5+18+19}{24}$$

$$M_{\text{pl}} = \frac{415}{24} = 17.29$$

Item 4

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_4}$$

$$M_{pl} = \frac{22+20+21+19+7+21+22+16+19+22+21+17+14+22+17+20+17+21+12+21+19}{21}$$

$$M_{pl} = \frac{390}{21} = 18.57$$

Item 5

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_5}$$

$$M_{pl} = \frac{22+20+19+12+18+15+22+16+19+22+17+14+22+20+19+21+12+21+18+19}{20}$$

$$M_{pl} = \frac{368}{20} = 18.40$$

Item 6

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_6}$$

$$M_{pl} = \frac{21+21+15+22+16+22+21+17+22+20+17+21+19}{13}$$

$$M_{pl} = \frac{254}{13} = 19.53$$

Item 7

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_7}$$

$$M_{pl} = \frac{22+20+21+19+15+12+18+10+22+16+22+21+17+14+22+17+20+17+19+4+21+12+21+18+19}{25}$$

$$M_{pl} = \frac{448}{25} = 17.92$$

Item 8

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_8}$$

$$M_{pl} = \frac{22+20+21+19+7+21+12+18+22+16+19+22+21+22+20+17+21+5+21+18+19}{21}$$

$$M_{pl} = \frac{390}{21} = 18.57$$

Item 9

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_9}$$

$$M_{pl} = \frac{22+20+21+21+15+18+15+10+16+19+22+21+17+14+22+17+20+17}{23}$$

$$M_{pl} = \frac{418}{23} = 18.17$$

Item 10

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{10}}$$

$$M_{pl} = \frac{22+20+21+7+21+15+18+15+22+16+19+22+17+20+19+21+21+18+19}{19}$$

$$M_{pl} = \frac{389}{19} = 20.47$$

Item 11

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{11}}$$

$$M_{pl} = \frac{22+20+15+10+22+19+22+21+22+17+19+21+12+18}{14}$$

$$M_{pl} = \frac{263}{14} = 18.78$$

Item 12

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{12}}$$

$$M_{pl} = \frac{22+20+21+19+21+15+18+15+22+16+19+22+17+14+22+17+20+17+19+5+21}{21}$$

$$M_{pl} = \frac{382}{21} = 18.19$$

Item 13

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{13}}$$

$$M_{pl} = \frac{22+20+21+19+21+15+12+15+10+22+16+19+22+21+17+22+17+20+17+19+21+5+21+18+19}{25}$$

$$M_{pl} = \frac{451}{25} = 18.04$$

Item 14

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{14}}$$

$$M_{pl} = \frac{22+20+21+19+7+21+15+12+18+15+22+19+22+21+17+14+22+17+19+12+21+19}{22}$$

$$M_{pl} = \frac{395}{22} = 17.95$$

Item 15

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{15}}$$

$$M_{pl} = \frac{22+21+19+21+12+18+15+22+22+21+14+22+20+17+19+21+18+19}{18}$$

$$M_{pl} = \frac{343}{18} = 19.05$$

Item 16

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{16}}$$

$$M_{pl} = \frac{22+20+21+19+21+15+18+15+22+19+22+21+17+14+17+20+17+4+21+21+18+19}{22}$$

$$M_{pl} = \frac{403}{22} = 18.31$$

Item 17

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n17}$$

$$M_{pl} = \frac{22+20+21+19+7+21+15+18+15+22+19+22+21+17+22+20+17+19+4+21+12+21+18+19}{24}$$

$$M_{pl} = \frac{432}{24} = 18.00$$

Item 18

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n18}$$

$$M_{pl} = \frac{22+20+21+19+21+12+18+22+16+19+22+21+22+17+20+17+19+21+12+21+18+19}{22}$$

$$M_{pl} = \frac{419}{22} = 19.045$$

Item 19

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n11}$$

$$M_{pl} = \frac{22+20+21+19+21+15+18+15+10+22+16+21+14+22+17+20+17+12+18}{19}$$

$$M_{pl} = \frac{357}{19} = 18.78$$

Item 20

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n20}$$

$$M_{pl} = \frac{22+20+21+19+21+15+12+18+16+22+21+17+14+22+17+20+17+19+21+12+21+18+19}{23}$$

$$M_{pl} = \frac{424}{23} = 18.43$$

Item 21

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n21}$$

$$M_{pl} = \frac{20+21+7+22+19+21+17+22+17+19+4+21+5+12}{14}$$

$$M_{pl} = \frac{270}{14} = 19.28$$

Item 22

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n22}$$

$$M_{pl} = \frac{22+21+17+17+19+21+18}{7}$$

$$M_{pl} = \frac{135}{7} = 19.28$$

Item 23

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{23}}$$

$$M_{pl} = \frac{22+20+19+21+15+18+15+10+22+19+22+17+22+17+19+21+21+18+19}{19}$$

$$M_{pl} = \frac{357}{19} = 18.78$$

Item 24

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{24}}$$

$$M_{pl} = \frac{22+20+21+19+21+15+12+18+10+22+19+22+21+17+22+17+20+17+19+21+21+18+19}{23}$$

$$M_{pl} = \frac{433}{23} = 18.82$$

Item 25

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{25}}$$

$$M_{pl} = \frac{22+20+21+19+21+12+18+22+16+19+22+21+17+14+22+17+20+17+19+21+12+21+18}{23}$$

$$M_{pl} = \frac{431}{23} = 18.73$$

4. Calculation of the formulation $r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$

Item 1

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.17 - 16.86}{5.00} \sqrt{\frac{0.7}{0.2}}$$

$$r_{pbi} = \frac{1.31}{5.00} \sqrt{3.5}$$

$$r_{pbi} = 0.262 \times 1.8 = 0.471$$

Item 2

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{17.81 - 16.86}{5.00} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{0.95}{5.00} \sqrt{2.33}$$

$$r_{pbi} = 0.19 \times 1.5 = 0.288$$

Item 3

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{17.29 - 16.86}{5.00} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{0.43}{5.00} \sqrt{4}$$

$$r_{pbi} = 0.086 \times 2 = 0.172$$

Item 4

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.57 - 16.86}{5.00} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{1.71}{5.00} \sqrt{2.33}$$

$$r_{pbi} = 0.342 \times 1.52 = 0.519$$

Item 5

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.40 - 16.86}{5.00} \sqrt{\frac{0.6}{0.4}}$$

$$r_{pbi} = \frac{1.54}{5.00} \sqrt{1.5}$$

$$r_{pbi} = 0.308 \times 1.22 = 0.375$$

Item 6

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{19.53 - 16.86}{5.00} \sqrt{\frac{0.4}{0.6}}$$

$$r_{pbi} = \frac{2.67}{5.00} \sqrt{0.66}$$

$$r_{pbi} = 0.534 \times 0.812 = 0.433$$

Item 7

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{17.92 - 16.86}{5.00} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1.06}{5.00} \sqrt{4}$$

$$r_{pbi} = 0.212 \times 2 = 0.424$$

Item 8

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.57 - 16.86}{5.00} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{1.71}{5.00} \sqrt{2.33}$$

$$r_{pbi} = 0.342 \times 1.52 = 0.519$$

Item 9

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.17 - 16.86}{5.00} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{1.31}{5.00} \sqrt{2.33}$$

$$r_{pbi} = 0.262 \times 1.52 = 0.398$$

Item 10

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{20.47 - 16.86}{5.00} \sqrt{\frac{0.6}{0.4}}$$

$$r_{pbi} = \frac{3.61}{5.00} \sqrt{1.5}$$

$$r_{pbi} = 0.722 \times 1.22 = 0.880$$

Item 11

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.78 - 16.86}{5.00} \sqrt{\frac{0.4}{0.6}}$$

$$r_{pbi} = \frac{1.92}{5.00} \sqrt{0.66}$$

$$r_{pbi} = 0.384 \times 0.81 = 0.311$$

Item 12

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.19 - 16.86}{5.00} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1.33}{5.00} \sqrt{4}$$

$$r_{pbi} = 0.266 \times 2 = 0.532$$

Item 13

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.04 - 16.86}{5.00} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1.18}{5.00} \sqrt{4}$$

$$r_{pbi} = 0.236 \times 2 = 0.472$$

Item 14

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{17.95 - 16.86}{5.00} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{1.09}{5.00} \sqrt{2.33}$$

$$r_{pbi} = 0.218 \times 1.52 = 0.331$$

Item 15

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{19.05 - 16.86}{5.00} \sqrt{\frac{0.6}{0.4}}$$

$$r_{pbi} = \frac{2.19}{5.00} \sqrt{1.5}$$

$$r_{pbi} = 0.438 \times 1.22 = 0.534$$

Item 16

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.31 - 16.86}{5.00} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{1.45}{5.00} \sqrt{2.33}$$

$$r_{pbi} = 0.29 \times 1.52 = 0.440$$

Item 17

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.00 - 16.86}{5.00} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1.14}{5.00} \sqrt{4}$$

$$r_{pbi} = 0.228 \times 2 = 0.456$$

Item 18

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{19.04 - 16.86}{5.00} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{2.18}{5.00} \times 2.33$$

$$r_{pbi} = 0.436 \times 1.52 = 0.662$$

Item 19

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.78 - 16.86}{5.00} \sqrt{\frac{0.6}{0.4}}$$

$$r_{pbi} = \frac{1.92}{5.00} \sqrt{1.5}$$

$$r_{pbi} = 0.384 \times 1.22 = 0.468$$

Item 20

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.43 - 16.86}{5.00} \sqrt{\frac{0.7}{0.2}}$$

$$r_{pbi} = \frac{1.57}{5.00} \sqrt{3.5}$$

$$r_{pbi} = 0.314 \times 1.87 = 0.587$$

Item 21

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{19.28 - 16.86}{5.00} \sqrt{\frac{0.4}{0.6}}$$

$$r_{pbi} = \frac{2.42}{5.00} \sqrt{0.66}$$

$$r_{pbi} = 0.484 \times 0.812 = 0.393$$

Item 22

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{19.28 - 16.86}{5.00} \sqrt{\frac{0.2}{0.8}}$$

$$r_{pbi} = \frac{2.42}{5.00} \sqrt{0.25}$$

$$r_{pbi} = 0.484 \times 0.5 = 0.242$$

Item 23

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{1.92 - 16.86}{5.00} \sqrt{\frac{0.6}{0.4}}$$

$$r_{pbi} = \frac{1.92}{5.00} \sqrt{1.5}$$

$$r_{pbi} = 0.384 \times 1.22 = 0.468$$

Item 24

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.82 - 16.86}{5.00} \sqrt{\frac{0.7}{0.2}}$$

$$r_{pbi} = \frac{1.96}{5.00} \sqrt{3.5}$$

$$r_{pbi} = 0.392 \times 1.87 = 0.7333$$

Item 25

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.73 - 16.86}{5.00} \sqrt{\frac{0.7}{0.2}}$$

$$r_{pbi} = \frac{1.87}{5.00} \sqrt{3.5}$$

$$r_{pbi} = 0.374 \times 1.87 = 0.699$$

Appendix 10

Table Validity of Pre Test

No	Mp	Mt	SDt	p	q	$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$	Rt on 5% significant	Interpretation
1	18.17	16.86	5.00	0.7	0.2	0.471	0.361	Valid
2	17.81	16.86	5.00	0.7	0.3	0.288	0.361	Invalid
3	17.29	16.86	5.00	0.8	0.2	0.172	0.361	Invalid
4	18.57	16.86	5.00	0.7	0.3	0.519	0.361	Valid
5	18.40	16.86	5.00	0.6	0.4	0.375	0.361	Valid
6	19.53	16.86	5.00	0.4	0.6	0.433	0.361	Valid
7	17.92	16.86	5.00	0.8	0.2	0.424	0.361	Valid
8	17.00	16.86	5.00	0.7	0.3	0.519	0.361	Valid
9	18.17	16.86	5.00	0.7	0.2	0.398	0.361	Valid
10	20.47	16.86	5.00	0.6	0.4	0.880	0.361	Valid
11	18.78	16.86	5.00	0.4	0.6	0.311	0.361	Invalid
12	18.19	16.86	5.00	0.7	0.3	0.532	0.361	Valid
13	18.04	16.86	5.00	0.8	0.2	0.472	0.361	Valid
14	17.95	16.86	5.00	0.7	0.3	0.331	0.361	Invalid
15	19.05	16.86	5.00	0.6	0.4	0.534	0.361	Valid
16	18.31	16.86	5.00	0.7	0.3	0.440	0.361	Valid
17	18.00	16.86	5.00	0.8	0.2	0.456	0.361	Valid
18	19.04	16.86	5.00	0.7	0.3	0.662	0.361	Valid
19	18.78	16.86	5.00	0.6	0.4	0.468	0.361	Valid
20	18.43	16.86	5.00	0.7	0.2	0.587	0.361	Valid
21	19.28	16.86	5.00	0.4	0.6	0.393	0.361	Valid
22	19.28	16.86	5.00	0.2	0.8	0.242	0.361	Invalid
23	18.78	16.86	5.00	0.6	0.4	0.468	0.361	Valid
24	18.82	16.86	5.00	0.7	0.2	0.733	0.361	Valid
25	18.73	16.86	5.00	0.7	0.2	0.699	0.361	Valid

Appendix 13

Table Validity of Post Test

No	Mp	Mt	SDt	p	q	$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$	Rt on 5% significant	Interpretation
1	17.50	17.33	3.50	0.7	0.2	0.089	0.361	Invalid
2	18.27	17.33	3.50	0.7	0.2	0.501	0.361	Valid
3	17.95	17.33	3.50	0.8	0.2	0.354	0.361	Invalid
4	19.41	17.33	3.50	0.5	0.4	0.654	0.361	Valid
5	18.66	17.33	3.50	0.7	0.3	0.573	0.361	Valid
6	16.00	17.33	3.50	0.3	0.6	-0.266	0.361	Invalid
7	17.92	17.33	3.50	0.8	0.1	0.470	0.361	Valid
8	18.07	17.33	3.50	0.8	0.1	0.590	0.361	Valid
9	14.40	17.33	3.50	0.1	0.8	-0.290	0.361	Invalid
10	18.29	17.33	3.50	0.8	0.2	0.548	0.361	Valid
11	18.04	17.33	3.50	0.8	0.1	0.565	0.361	Valid
12	18.28	17.33	3.50	0.8	0.1	0.758	0.361	Valid
13	18.45	17.33	3.50	0.7	0.2	0.598	0.361	Valid
14	18.13	17.33	3.50	0.7	0.2	0.426	0.361	Valid
15	21.00	17.33	3.50	0.2	0.8	0.524	0.361	Valid
16	16.20	17.33	3.50	0.1	0.8	-1.127	0.361	Invalid
17	18.21	17.33	3.50	0.7	0.2	0.561	0.361	Valid
18	18.17	17.33	3.50	0.7	0.2	0.448	0.361	Valid
19	18.56	17.33	3.50	0.7	0.2	0.656	0.361	Valid
20	18.04	17.33	3.50	0.8	0.2	0.404	0.361	Valid
21	17.88	17.33	3.50	0.9	0.1	0.471	0.361	Valid
22	18.29	17.33	3.50	0.8	0.2	0.548	0.361	Valid
23	18.80	17.33	3.50	0.8	0.2	0.668	0.361	Valid
24	18.04	17.33	3.50	0.8	0.1	0.565	0.361	Valid
25	18.07	17.33	3.50	0.8	0.1	0.590	0.361	Valid

Appendix 12

$$\text{Calculation of } r_{\text{pbi}} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

B. Calculation of Post-test

5. Mean score from score total (M_t)

$$M_t = \frac{\sum X_t}{N}$$

$$M_t = \frac{520}{30} = 17.33$$

6. Standard Deviation (SD_t)

$$SD_t = \sqrt{\frac{\sum X_t^2}{N} - \left(\frac{\sum X_t}{N}\right)^2}$$

$$SD_t = \sqrt{\frac{9378}{30} - \left(\frac{520}{30}\right)^2}$$

$$SD_t = \sqrt{312.6 - 17.33^2}$$

$$SD_t = \sqrt{312.6 - 300.32}$$

$$SD_t = \sqrt{12.28} = 3.50$$

7. Mean Score (M_p)

Item 1

$$M_{\text{pl}} = \frac{\text{total score of students' score that true item answer}}{n_1}$$

$$M_{\text{pl}} = \frac{22+19+12+22+21+20+21+22+20+17+14+14+22+17+19+20+13+14+15+14+15+12}{22}$$

$$M_{\text{pl}} = \frac{385}{23} = 17.5$$

Item 2

$$M_{\text{pl}} = \frac{\text{total score of students' score that true item answer}}{n_2}$$

$$M_{\text{pl}} = \frac{22+19+12+20+22+21+19+20+21+22+19+20+17+20+14+17+19+20+14+13+19+12}{22}$$

$$M_{\text{pl}} = \frac{402}{22} = 18.27$$

Item 3

$$M_{\text{pl}} = \frac{\text{total score of students' score that true item answer}}{n_3}$$

$$M_{\text{pl}} = \frac{22+19+12+20+22+21+20+21+22+19+20+17+14+20+14+22+19+20+13+13+15+19+15+12}{24}$$

$$M_{\text{pl}} = \frac{431}{24} = 17.95$$

Item 4

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n4}$$

$$M_{pl} = \frac{22+19+12+20+22+21+19+20+21+19+20+17+14+20+22+20}{17}$$

$$M_{pl} = \frac{330}{17} = 19.41$$

Item 5

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n5}$$

$$M_{pl} = \frac{22+19+20+22+21+19+20+21+22+19+20+17+20+14+22+17+19+20+13+14+11}{21}$$

$$M_{pl} = \frac{392}{21} = 18.66$$

Item 6

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n6}$$

$$M_{pl} = \frac{22+22+14+19+13+13+19+15+12+11}{10}$$

$$M_{pl} = \frac{160}{10} = 16$$

Item 7

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n7}$$

$$M_{pl} = \frac{22+19+12+22+21+19+20+21+22+19+20+17+14+20+14+22+17+14+19+20+14+15+19+15+11}{25}$$

$$M_{pl} = \frac{448}{25} = 17.92$$

Item 8

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n8}$$

$$M_{pl} = \frac{22+19+20+22+21+19+20+21+22+19+20+17+14+20+14+22+17+19+20+13+14+15+14+19+15+12}{26}$$

$$M_{pl} = \frac{470}{26} = 18.07$$

Item 9

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n9}$$

$$M_{pl} = \frac{22+14+13+11+12}{5}$$

$$M_{pl} = \frac{72}{5} = 14.4$$

Item 10

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{10}}$$

$$M_{pl} = \frac{22+19+12+20+22+21+19+20+21+22+19+20+17+20+14+22+19+20+13+14+15+14+19+15}{24}$$

$$M_{pl} = \frac{439}{24} = 18.29$$

Item 11

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{11}}$$

$$M_{pl} = \frac{22+19+12+20+22+21+19+20+21+22+19+20+17+14+20+22+14+19+20+13+14+13+15+14+19}{25}$$

$$M_{pl} = \frac{451}{25} = 18.04$$

Item 12

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{12}}$$

$$M_{pl} = \frac{22+19+20+22+21+19+20+21+22+19+20+17+20+14+22+17+14+19+20+14+15+14+19+15+12}{25}$$

$$M_{pl} = \frac{457}{25} = 18.28$$

Item 13

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{13}}$$

$$M_{pl} = \frac{22+19+20+22+21+19+20+21+22+19+20+17+14+20+22+19+14+15+14+19+15+12}{22}$$

$$M_{pl} = \frac{406}{22} = 18.45$$

Item 14

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{14}}$$

$$M_{pl} = \frac{22+19+21+19+20+21+22+19+20+17+14+20+14+22+17+14+19+20+14+19+15+11}{22}$$

$$M_{pl} = \frac{399}{22} = 18.13$$

Item 15

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{15}}$$

$$M_{pl} = \frac{22+20+22+21+19+22}{6}$$

$$M_{pl} = \frac{126}{6} = 21$$

Item 16

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{16}}$$

$$M_{pl} = \frac{19+20+17+14+11}{5}$$

$$M_{pl} = \frac{81}{5} = 16.2$$

Item 17

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{17}}$$

$$M_{pl} = \frac{22+12+20+22+21+19+20+21+22+19+20+17+14+20+14+22+17+20+14+15+14+19+15}{23}$$

$$M_{pl} = \frac{419}{23} = 18.21$$

Item 18

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{18}}$$

$$M_{pl} = \frac{22+19+12+20+22+21+19+20+21+22+20+17+14+20+22+17+19+20+13+13+19+15+11}{23}$$

$$M_{pl} = \frac{418}{23} = 18.17$$

Item 19

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{19}}$$

$$M_{pl} = \frac{22+12+20+22+21+19+20+21+22+19+20+14+20+22+17+14+20+14+13+15+14+19+12}{23}$$

$$M_{pl} = \frac{427}{23} = 18.56$$

Item 20

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{20}}$$

$$M_{pl} = \frac{22+19+12+20+22+21+19+20+21+22+19+20+20+14+22+17+14+19+20+13+13+14+19+11}{24}$$

$$M_{pl} = \frac{433}{24} = 18.04$$

Item 21

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{21}}$$

$$M_{pl} = \frac{22+19+20+22+21+19+20+21+22+19+20+17+14+20+14+22+17+14+19+20+13+14+13+15+19+15+12}{27}$$

$$M_{pl} = \frac{483}{27} = 17.88$$

Item 22

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n_{22}}$$

$$M_{pl} = \frac{22+19+20+22+21+19+21+22+19+20+20+22+17+14+19+20+13+14+13+15+14+19+12+11}{24}$$

$$M_{pl} = \frac{439}{24} = 18.29$$

Item 23

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n23}$$

$$M_{pl} = \frac{22+19+20+22+21+19+20+21+22+19+20+17+14+20+22+17+14+19+20+14+13+15+19+15}{24}$$

$$M_{pl} = \frac{444}{24} = 18.8$$

Item 24

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n24}$$

$$M_{pl} = \frac{22+19+12+20+22+19+20+21+22+19+20+20+20+14+22+17+14+19+20+14+13+15+14+19+12+11}{25}$$

$$M_{pl} = \frac{451}{25} = 18.04$$

Item 25

$$M_{pl} = \frac{\text{total score of students' score that true item answer}}{n25}$$

$$M_{pl} = \frac{22+20+22+21+20+21+22+19+17+14+20+14+22+17+14+19+20+13+14+13+15+14+19+15+12+11}{26}$$

$$M_{pl} = \frac{470}{26} = 18.07$$

8. Calculation of the formulation $r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$

Item 1

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{17.5 - 17.33}{3.50} \sqrt{\frac{0.7}{0.2}}$$

$$r_{pbi} = \frac{0.17}{3.50} \sqrt{3.5}$$

$$r_{pbi} = 0.048 \times 1.87 = 0.089$$

Item 2

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.27 - 17.33}{3.50} \sqrt{\frac{0.7}{0.2}}$$

$$r_{pbi} = \frac{0.94}{3.50} \sqrt{3.5}$$

$$r_{pbi} = 0.268 \times 1.87 = 0.501$$

Item 3

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{17.95 - 17.33}{3.50} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{0.62}{3.50} \sqrt{4}$$

$$r_{pbi} = 0.177 \times 2 = 0.354$$

Item 4

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{19.41 - 17.33}{3.50} \sqrt{\frac{0.5}{0.4}}$$

$$r_{pbi} = \frac{2.08}{3.50} \sqrt{1.25}$$

$$r_{pbi} = 0.59 \times 1.11 = 0.654$$

Item 5

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.66 - 17.33}{3.50} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{1.33}{3.50} \sqrt{2.3}$$

$$r_{pbi} = 0.38 \times 1.51 = 0.573$$

Item 6

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{16 - 17.33}{3.50} \sqrt{\frac{0.3}{0.6}}$$

$$r_{pbi} = \frac{-1.33}{3.50} \sqrt{0.5}$$

$$r_{pbi} = -0.38 \times 0.70 = -0.266$$

Item 7

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{17.92 - 17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$$

$$r_{pbi} = \frac{0.59}{3.50} \sqrt{8}$$

$$r_{pbi} = 0.168 \times 2.8 = 0.470$$

Item 8

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.07 - 17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$$

$$r_{pbi} = \frac{0.74}{3.50} \sqrt{8}$$

$$r_{pbi} = 0.211 \times 2.8 = 0.590$$

Item 9

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{14.4 - 17.33}{3.50} \sqrt{\frac{0.1}{0.8}}$$

$$r_{pbi} = \frac{2.93}{3.50} \sqrt{0.125}$$

$$r_{pbi} = -0.83 \times 0.35 = -0.290$$

Item 10

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.29 - 17.33}{3.50} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{0.96}{3.50} \sqrt{4}$$

$$r_{pbi} = 0.274 \times 2 = 0.548$$

Item 11

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.04 - 17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$$

$$r_{pbi} = \frac{0.71}{3.50} \sqrt{8}$$

$$r_{pbi} = 0.202 \times 2.8 = 0.565$$

Item 12

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{\text{pbi}} = \frac{18.28 - 17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$$

$$r_{\text{pbi}} = \frac{0.95}{3.50} \sqrt{8}$$

$$r_{\text{pbi}} = 0.271 \times 2.8 = 0.758$$

Item 13

$$r_{\text{pbi}} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{\text{pbi}} = \frac{18.45 - 17.33}{3.50} \sqrt{\frac{0.7}{0.2}}$$

$$r_{\text{pbi}} = \frac{1.12}{3.50} \sqrt{3.5}$$

$$r_{\text{pbi}} = 0.32 \times 1.87 = 0.598$$

Item 14

$$r_{\text{pbi}} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{\text{pbi}} = \frac{18.13 - 17.33}{3.50} \sqrt{\frac{0.7}{0.2}}$$

$$r_{\text{pbi}} = \frac{0.8}{3.50} \sqrt{3.5}$$

$$r_{\text{pbi}} = 0.228 \times 1.87 = 0.426$$

Item 15

$$r_{\text{pbi}} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{\text{pbi}} = \frac{21 - 17.33}{3.50} \sqrt{\frac{0.2}{0.8}}$$

$$r_{\text{pbi}} = \frac{3.67}{3.50} \sqrt{0.25}$$

$$r_{\text{pbi}} = 1.048 \times 0.5 = 0.524$$

Item 16

$$r_{\text{pbi}} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{\text{pbi}} = \frac{16.2 - 17.33}{3.50} \sqrt{\frac{0.1}{0.8}}$$

$$r_{\text{pbi}} = \frac{-1.13}{3.50} \sqrt{0.125}$$

$$r_{\text{pbi}} = -3.22 \times 0.35 = -1.127$$

Item 17

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.21 - 17.33}{3.50} \sqrt{\frac{0.7}{0.2}}$$

$$r_{pbi} = \frac{1.050}{3.50} \sqrt{3.5}$$

$$r_{pbi} = 0.3 \times 1.87 = 0.561$$

Item 18

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.17 - 17.33}{3.50} \sqrt{\frac{0.7}{0.2}}$$

$$r_{pbi} = \frac{0.84}{3.50} \sqrt{3.5}$$

$$r_{pbi} = 0.24 \times 1.87 = 0.448$$

Item 19

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.56 - 17.33}{3.50} \sqrt{\frac{0.7}{0.2}}$$

$$r_{pbi} = \frac{1.23}{3.50} \sqrt{3.5}$$

$$r_{pbi} = 0.351 \times 1.87 = 0.656$$

Item 20

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.04 - 17.33}{3.50} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{0.71}{3.50} \sqrt{4}$$

$$r_{pbi} = 0.202 \times 2 = 0.404$$

Item 21

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{17.88 - 17.33}{3.50} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0.55}{3.50} \sqrt{9}$$

$$r_{pbi} = 0.157 \times 3 = 0.471$$

Item 22

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.29 - 17.33}{3.50} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{0.96}{3.50} \sqrt{4}$$

$$r_{pbi} = 0.274 \times 2 = 0.548$$

Item 23

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.8 - 17.33}{3.50} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1.17}{3.50} \sqrt{4}$$

$$r_{pbi} = 0.334 \times 2 = 0.668$$

Item 24

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.04 - 17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$$

$$r_{pbi} = \frac{0.71}{3.50} \sqrt{8}$$

$$r_{pbi} = 0.202 \times 2.8 = 0.565$$

Item 25

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

$$r_{pbi} = \frac{18.07 - 17.33}{3.50} \sqrt{\frac{0.8}{0.1}}$$

$$r_{pbi} = \frac{0.74}{3.50} \sqrt{8}$$

$$r_{pbi} = 0.211 \times 2.8 = 0.590$$

Appendix 14

Reliability Pre Test

To get reliability of the test, the researcher uses formula KR-20:

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

$$N = 30$$

$$\sum Xt = 506$$

$$\sum Xt^2 = 9280$$

$$\sum pq = 4.07$$

$$\begin{aligned} S_t^2 &= \sum Xt^2 - \left(\frac{\sum xt}{N} \right)^2 \\ &= 9280 - \left(\frac{506}{25} \right)^2 = 9280 - 16.86^2 = 9280 - 284.26 = 8995.74 \end{aligned}$$

$$S_t^2 = \frac{\sum Xt^2}{N} = \frac{8995.74}{30}$$

$$S_t^2 = 299.858$$

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

$$\begin{aligned} R_{11} &= \left(\frac{30}{30-1} \right) \left(\frac{299.858 - 4.07}{299.858} \right) = \left(\frac{30}{29} \right) \left(\frac{65.83}{75.66} \right) \\ &= (1.03) (0.98) \\ &= 1.01 \quad (r_{11} > 0.70 = \text{reliable}) \end{aligned}$$

Test is reliable if $r_{\text{count}} > r_{\text{tabel}}$. Based on calculation above, the test has high reliability.

Appendix 15

Reliability Post Test

To get reliability of the test, the researcher uses formula KR-20:

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

$$N = 30$$

$$\sum Xt = 520$$

$$\sum Xt^2 = 9378$$

$$\sum pq = 9.83$$

$$\begin{aligned} S_t^2 &= \sum Xt^2 - \left(\frac{\sum xt}{N} \right)^2 \\ &= 9378 - \left(\frac{520}{30} \right)^2 = 9378 - 17.33^2 = 9378 - 300.32 = 9077.68 \end{aligned}$$

$$S_t^2 = \frac{\sum Xt^2}{N} = \frac{9077.68}{30}$$

$$S_t^2 = 302.589$$

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

$$\begin{aligned} R_{11} &= \left(\frac{30}{30-1} \right) \left(\frac{302.589 - 9.83}{302.589} \right) = \left(\frac{30}{29} \right) \left(\frac{292.759}{302.589} \right) \\ &= (1.03) (0.96) \\ &= 0.99 \quad (r_{11} > 0.70 = \text{reliable}) \end{aligned}$$

Test is reliable if $r_{\text{count}} > r_{\text{tabel}}$. Based on calculation above, the test have high reliability.

Appendix 16

Score of Experimental Class and Control Class on Pre Test

1. PRE TEST

a. Pre Test Score of Experimental Class

No	The Name of Students	Score of Pre Test
1	Andri Syaputra	70
2	Alwin Fahri Srg	45
3	Aman Saleh Srg	60
4	Amirul Lubis	50
5	Arya Mukti Hrp	65
6	Efriana Sari Stp	75
7	Fadillah Riska	35
8	Fazri	80
9	Hijjah Fadilla	50
10	Holida Safitri	45
11	Inju Paramita	50
12	Lailatussifa Srg	75
13	Lenni Kesuma	60
14	Lidia	55
15	MHM. Fauzan Rangkuti	50
16	Nia Merianti	70
17	Nur Ainun Srg	80
18	Nur Asiah Lubis	60
19	Padilla Fitria	55
20	Raihan Daffa	40
21	Risky Amalia Hsb	80
22	Riski Amelia sari	45
23	Rosliana Hrp	60
24	Rahmi rezeki	50
25	Siti Hairani	75
26	Sri Yani	55
27	Ulfa Fauziah	85
28	Wahyu Putra	80
29	Yogi Eka Saputra	60
30	Yusril Ihza Mahendra	55
Total		1815

b. Pre Test Score of Control Class

No	The Name of Students	Score of Pre Test
1	Adella Puspita	70
2	Agung Adiansyah	60
3	Alisah Sanira	40
4	Anggi Fitria Lubis	80
5	Aulia Rahman Siregar	70
6	Baina	55
7	Desi Romadani	75
8	Dinda Hmidi Lubis	40
9	Doni Indra Wijaya Harahap	60
10	Fatima Sari Harahap	85
11	Fauzi Nasution	55
12	Fitriana Harahap	35
13	Indra Sulaiman	75
14	Irsyad Hamdi	60
15	Jamaluddin Siregar	65
16	Khoirul Sehat Siregar	66
17	Khoirun Nisa	45
18	Lasmaita	55
19	Madia	30
20	M. Zakwan johari Siregar	55
21	Nanda Yuspita	80
22	Nurhikmah	35
23	Nofrya Rahayu Shinta	40
24	Osama Siregar	45
25	Putri Diana	80
26	Putrid Nopriani Lubis	40
27	Rika Sasmita	35
28	Riski Maimunah Lubis	55
29	Ryan Fadli	70
30	Widia Safitri Nasution	60
Total		1705

Appendix 17

RESULT OF NORMALITY TEST IN PRE TEST

A. RESULT OF THE NORMALITY TEST OF XI IPA-3 IN PRE-TEST

1. The score of XI IPA-3 class in pre test from low score to high score:

35	40	45	45	45	50	50	50	50	50
55	55	55	55	60	60	60	60	60	65
70	70	75	75	75	80	80	80	80	85

2. High = 85

Low = 35

Range = High – Low

$$= 85 - 35$$

$$= 50$$

3. Total of Classes = $1 + 3,3 \log (n)$
 $= 1 + 3,3 \log (30)$
 $= 1 + 3,3 (1.47)$
 $= 1 + 4.85$
 $= 5.85$
 $= 6$

4. Length of Classes = $\frac{range}{totalofclass} = \frac{50}{6} = 8.33 = 9$

5. Mean

Interval Class	F	X	x'	fx'	x' ²	fx' ²
80 – 88	5	84	+3	15	9	45
71 – 79	3	75	+2	6	4	12
62 – 70	3	66	+1	3	1	3
53 – 61	9	57	0	0	0	0
44 – 52	8	48	-1	-8	1	8
35 – 43	2	39	-2	-4	4	8
i = 9	30	-	-	12	-	76

$$Mx = M^1 + i \frac{\sum fx^1}{N}$$

$$\begin{aligned}
&= 57 + 9 \left(\frac{12}{30}\right) \\
&= 57 + 9 (0.4) \\
&= 57 + 3.6 \\
&= 60.6
\end{aligned}$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum fx_i^2}{n} - \left(\frac{\sum fx_i}{n}\right)^2} \\
&= 9 \sqrt{\frac{76}{30} - \left(\frac{12}{30}\right)^2} \\
&= 9 \sqrt{2.5 - (0.4)^2} \\
&= 9 \sqrt{2.5 - 0.16} \\
&= 9 \sqrt{2.34} \\
&= 9 \times 1.52 = 13.61
\end{aligned}$$

Table of Normality Data Test with Chi Square 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 - 88	88.5	2.04	0.4793	0.06	1.8	5	1.777
71 - 79	79.5	1.38	0.4162	0.15	4.5	3	-0.333
62 - 70	70.5	0.72	0.2642	0.24	7.2	3	-0.583
53 - 61	61.5	0.06	0.0239	-0.27	-8.1	9	0.111
44 - 52	52.5	-0.59	0.27760	0.17	5.1	8	0.568
35 - 43	43.5	-1.25	0.10565	0.07	2.1	2	-0.047
	34.5	-1.91	0.02807				
X²							1.493

Based on the table above, the reseracher found that $x^2_{count} = 1.493$ while

$x^2_{table} = 11.070$, cause $x^2_{count} < x^2_{table}$ ($1.493 < 11.070$) with degree of freedom (dk)

= 6-1 = 5 and significant level $\alpha = 5\%$. So distribution of XI IPA-2 class (pre-test) is normal.

6. Median

No	Interval	F	Fk
1	35 – 43	2	2
2	44 – 52	8	10
3	53 – 61	9	19
4	62 – 70	3	22
5	71 – 79	3	25
6	80 – 88	5	30

Position of Me in the interval of classes is number 3, that:

$$Bb = 52.5$$

$$F = 10$$

$$fm = 9$$

$$i = 9$$

$$n = 30$$

$$1/2n = 15$$

So :

$$\begin{aligned} Me &= Bb + i \left(\frac{n/2 - F}{fm} \right) \\ &= 52.5 + 9 \left(\frac{15 - 10}{9} \right) \\ &= 52.5 + 9 (0.5) \\ &= 52.5 + 4.5 \\ &= 57 \end{aligned}$$

7. Modus

No	Interval	F	Fk
1	35 – 43	2	2
2	44 – 52	8	10

3	53 – 61	9	19
4	62 – 70	3	22
5	71 – 79	3	25
6	80 – 88	5	30

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

$$L = 52.5$$

$$d_1 = 1$$

$$d_2 = 6$$

$$i = 9$$

So,

$$\begin{aligned} M_o &= 52.5 + \frac{1}{1+6} 9 \\ &= 52.5 + 0.14 (9) \\ &= 52.5 + 1.26 \\ &= 51.24 \end{aligned}$$

B. RESULT OF THE NORMALITY TEST OF XI IPA-4 IN PRE-TEST

1. The score of XI IPA-4 class in pre test from low score to high score:

30	30	35	35	40	40	45	45	50	50
----	----	----	----	----	----	----	----	----	----

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

2. High = 80

Low = 30

Range = High - Low

= 80 - 30

= 50

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

= $1 + 3,3 \log (30)$

= $1 + 3,3 (1.477)$

= $1 + 4.874$

= 5.85

= 6

4. Length of Classes = $\frac{\text{range}}{\text{total of class}} = \frac{50}{6} = 8.3 = 9$

5. Mean

Interval Class	F	X	x'	fx'	x' ²	fx' ²
75 - 83	6	79	+3	18	9	54
66 - 74	3	70	+2	6	4	12
57 - 65	6	61	+1	6	1	6
48 - 56	7	52	0	0	0	0
39 - 47	4	43	-1	-4	1	4
30 - 38	4	34	-2	-8	4	16
i = 9	30	-	-	18	-	92

$$Mx = M' + i \frac{\sum fx'}{N}$$

$$= 52 + 9 \left(\frac{18}{30} \right)$$

$$= 52 + 9 (0.6)$$

$$= 52 + 5.4$$

$$= 57.4$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum f x_i^2}{n} - \left(\frac{\sum f x_i}{n}\right)^2} \\
&= 9 \sqrt{\frac{92}{30} - \left(\frac{18}{30}\right)^2} \\
&= 9 \sqrt{3.06 - (0.6)^2} \\
&= 9 \sqrt{3.06 - 0.36} \\
&= 9 \sqrt{2.7} \\
&= 9 \times 1.64 \\
&= 14.76
\end{aligned}$$

Table of Normality Data Test with Chi Square 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 – 83	83.5	1.76	0.4608				
				0.08	2.4	6	2.24
66 – 74	74.5	1.15	0.3749				
				0.16	4.8	3	0.14
57 – 65	65.5	0.54	0.2054				
				-0.27	-8.1	6	3.02
48 – 56	56.5	-0.06	0.47608				
				0.22	6.6	7	0.003
39 – 47	47.5	-0.67	0.25143				
				0.15	4.5	4	0.01
30 – 38	38.5	-1.28	0.10027				
				0.07	2.1	4	0.81
	29.5	-1.89	0.02938				
						X ²	6.223

Based on the table above, the reseracher found that $x^2_{count} = 6.223$ while $x^2_{table} = 11.070$, cause $x^2_{count} > x^2_{table}$ ($6.223 > 11.070$) with degree of freedom (dk) = $6 - 1 = 5$ and significant level $\alpha = 5\%$. So distribution of XI IPA-4 class (pre-test) is normal.

6. Median

No	Interval	F	Fk
1	30 – 38	4	6
2	39 – 47	4	9
3	48 – 56	7	15
4	57 – 65	6	22
5	66 – 74	3	26
6	75 – 83	6	30

Position of Me in the interval of classes is number 3, that:

$$Bb = 47.5$$

$$F = 9$$

$$fm = 7$$

$$i = 9$$

$$n = 30$$

$$1/2n = 15$$

So :

$$\begin{aligned}
 Me &= Bb + i \left(\frac{n/2 - F}{fm} \right) \\
 &= 47.5 + 9 \left(\frac{15 - 9}{7} \right) \\
 &= 47.5 + 9 (0.857) \\
 &= 47.5 + 7.71 \\
 &= 55.21
 \end{aligned}$$

7. Modus

No	Interval	F	Fk
1	30 – 38	4	6
2	39 – 47	4	9
3	48 – 56	7	15
4	57 – 65	6	22

5	66 – 74	3	26
6	75 – 83	6	30

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

$$L = 47.5$$

$$d_1 = 3$$

$$d_2 = 1$$

$$i = 9$$

So,

$$\begin{aligned} M_o &= 47.5 + \frac{3}{3+1} 9 \\ &= 47.5 + 0.75 (9) \\ &= 47.5 + 6.75 \\ &= 54.25 \end{aligned}$$

C. RESULT OF THE NORMALITY TEST OF XI IPA-5 IN PRE-TEST

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

30	35	35	35	40	40	40	45	45	55
55	55	55	55	60	60	60	60	60	65
65	70	70	70	75	75	80	80	80	85

2. High = 85

Low = 30

Range = High – Low

= 85 - 30

= 55

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

= $1 + 3,3 \log (30)$

= $1 + 3,3 (1.47)$

= $1 + 4.85$

= 5.85

= 6

4. Length of Classes = $\frac{\text{range}}{\text{totalofclass}} = \frac{55}{6} = 9.17 = 10$

5. Mean

Interval Class	F	X	x'	fx'	x' ²	fx' ²
80 – 89	4	84.5	+2	8	4	16
70 – 79	5	74.5	+1	5	1	5
60 – 69	7	64.5	0	0	0	0
50 – 59	5	54.5	-1	-5	1	5
40 – 49	5	44.5	-2	-10	4	20
30 – 39	4	34.5	-3	-12	9	36
i = 10	30	-	-	-14	-	82

$$Mx = M^1 + i \frac{\sum fx^1}{N}$$

$$= 64.5 + 10 \left(\frac{-14}{30} \right)$$

$$= 64.5 + 10 (-0.46)$$

$$= 64.5 + (-4.6)$$

$$= 59.9$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum f x_i^2}{n} - \left(\frac{\sum f x_i}{n}\right)^2} \\
&= 10 \sqrt{\frac{82}{30} - \left(\frac{-14}{30}\right)^2} \\
&= 10 \sqrt{2.7 - (-0.466)^2} \\
&= 10 \sqrt{2.7 - (-0.217)} \\
&= 10 \sqrt{2.917} \\
&= 10 \times 1.708 \\
&= 17.08
\end{aligned}$$

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 – 89	89.5	1.73	0.4582	0.08	2.4	4	0.435	
70 – 70	79.5	1.15	0.3749	0.16	4.8	5	0.002	
60 – 69	69.5	0.56	0.2123	-0.28	-8.4	7	-3.459	
50 – 59	59.5	-0.02	0.49202	0.22	6.6	5	-0.057	
40 – 49	49.5	-0.61	0.27093	0.15	4.5	5	0.012	
30 – 39	39.5	-1.19	0.11702	0.08	2.4	4	0.435	
	29.5							
X^2								-2.632

Based on the table above, the reseracher found that $x^2_{count} = -2.632$ while $x^2_{table} = 11.070$, cause $x^2_{count} < x^2_{table}$ ($-2.632 < 11.070$) with degree of freedom (dk) = 6–1 = 5 and significant level $\alpha = 5\%$. So distribution of XI IPA-3 class (pre-test) is normal.

6. Median

No	Interval	F	Fk
----	----------	---	----

1	30 – 39	4	4
2	40 – 49	5	9
3	50 – 59	5	14
4	60 – 69	7	21
5	70 – 79	5	26
6	80 – 89	4	30

Position of Me in the interval of classes is number 4, that:

$$Bb = 59.5$$

$$F = 14$$

$$fm = 7$$

$$i = 10$$

$$n = 30$$

$$1/2n = 15$$

So :

$$\begin{aligned}
 Me &= Bb + i \left(\frac{n/2 - F}{fm} \right) \\
 &= 59.5 + 10 \left(\frac{15 - 14}{7} \right) \\
 &= 59.5 + 10 (0.14) \\
 &= 59.5 + 1.4 \\
 &= 60.9
 \end{aligned}$$

7. Modus

No	Interval	F	Fk
1	30 – 39	4	4
2	40 – 49	5	9
3	50 – 59	5	14
4	60 – 69	7	21
5	70 – 79	5	26
6	80 – 89	4	30

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

$$L = 59.5$$

$$d_1 = 2$$

$$d_2 = 2$$

$$i = 10$$

So,

$$\begin{aligned} M_0 &= 59.5 + \frac{2}{2+2} 10 \\ &= 59.5 + 0.5 (10) \\ &= 59.5 + 5 \\ &= 64.5 \end{aligned}$$

Appendix 18

HOMOGENEITY TEST (PRE-TEST)

Calculation of parameter to get variant of the first class as experimental class sample and variant of the second class as control class sample 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 XI IPA 3 class is:

NO	Xi	Xi ²
1.	35	1225
2.	40	1600
3.	45	2025
4.	45	2025
5.	45	2025
6.	50	2500
7.	50	2500
8.	50	2500
9.	50	2500
10.	50	2500
11.	55	3025
12.	55	3025
13.	55	3025
14.	55	3025
15.	60	3600
16.	60	3600
17.	60	3600
18.	60	3600
19.	60	3600
20.	65	4225
21.	70	4900
22.	70	4900

23.	75	5625
24.	75	5625
25.	75	5625
26.	80	6400
27.	80	6400
28.	80	6400
29.	80	6400
30.	85	7225
Total	1815	115225

$$N = 30$$

$$\sum xi = 1815$$

$$\sum xi^2 = 115225$$

So:

$$\begin{aligned}
 S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\
 &= \frac{30(115225) - (1815)^2}{30(30-1)} \\
 &= \frac{3456750 - 3294225}{30(29)} \\
 &= \frac{162525}{870} \\
 &= 185.34
 \end{aligned}$$

B. Variant of the XI IPA 4 class is:

NO	Xi	Xi²
1.	30	900
2.	30	900
3.	35	1225
4.	35	1225
5.	40	1600
6.	40	1600
7.	45	2025
8.	45	2025
9.	50	2500
10.	50	2500
11.	50	2500
12.	50	2500
13.	55	3025
14.	55	3025
15.	55	3025

	60	3600
17.	60	3600
18.	60	3600
19.	60	3600
20.	65	4225
21.	65	4225
22.	70	4900
23.	70	4900
24.	70	4900
25.	75	5625
26.	75	5625
27.	75	5625
28.	75	5625
29.	80	6400
30.	80	6400
Total	1705	103425

$$N = 30$$

$$\sum xi = 1705$$

$$\sum_{xi} 2 = 103425$$

So:

$$\begin{aligned}
 S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\
 &= \frac{30(103425) - (1705)^2}{30(30-1)} \\
 &= \frac{312750 - 2907025}{30(29)} \\
 &= \frac{195725}{870} \\
 &= 224.97
 \end{aligned}$$

C. Variant of the XI IPA 5 class is:

NO	Xi	Xi²
31.	30	900
32.	35	1225
33.	35	1225
34.	35	1225
35.	40	1600
36.	40	1600

37.	40	1600
38.	45	2025
39.	45	2025
40.	55	3025
41.	55	3025
42.	55	3025
43.	55	3025
44.	55	3025
45.	60	3600
46.	60	3600
47.	60	3600
48.	60	3600
49.	60	3600
50.	65	4225
51.	65	4225
52.	70	4900
53.	70	4900
54.	70	4900
55.	75	5625
56.	75	5625
57.	80	6400
58.	80	6400
59.	80	6400
60.	85	7225
Total	1705	105375

$$N = 30$$

$$\sum xi = 1705$$

$$\sum xi^2 = 105375$$

So:

$$\begin{aligned}
 S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\
 &= \frac{30(105375) - (1705)^2}{30(30-1)} \\
 &= \frac{3161250 - 2907025}{30(29)} \\
 &= \frac{254225}{870} \\
 &= 292.21
 \end{aligned}$$

The Formula was used to test the hypothesis was:

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

1. XI IPA 3 and XI IPA 4 :

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

So:

$$F = \frac{224.97}{185.34} \\ = 1.21$$

After doing the calculation, researcher found that $F_{\text{count}} = 1.21$. It had been compared to F_{table} with $\alpha 5\%$ and dk numerator and deminator were same (n_1 and $n_2 = 30$; $dk = 30-1 = 29$). From the distribution list F, researcher found that $F_{\text{table}} = 4.18$, so $F_{\text{count}} < F_{\text{table}}$ ($1.21 < 4.18$). It could be concluded that there is no difference variant between the XI IPA 3 class and XI IPA 4 class. It means that the variant is homogenous.

2. XI IPA 3 and XI IPA 5 :

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

So:

$$F = \frac{292.21}{185.34} = 1.57$$

After doing the calculation, researcher found that $F_{\text{count}} = 1.57$. It had been compared to F_{table} with $\alpha 5\%$ and dk numerator ($n_1-1 = 30-1 = 29$ and deminator $n_2- 1 = 30-1 29$). From the distribution list F, researcher found that

$F_{table} = 4.18$, so $F_{count} > F_{table}$ ($1.30 < 4.18$). It could be concluded that there is no difference variant between the XI IPA 3 class and XI IPA 5 class. It means that the variant is homogenous.

3. XI IPA 4 and XI IPA 5 :

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

So:

$$\begin{aligned} F &= \frac{292.21}{224.97} \\ &= 1.29 \end{aligned}$$

After doing the calculation, researcher found that $F_{count} = 1.29$. It had been compared to F_{table} with α 5% and dk numerator ($n_1 - 1 = 30 - 1 = 29$ and deminator $n_2 - 1 = 30 - 1 = 29$). From the distribution list F, researcher found that $F_{table} = 4.18$, so $F_{count} > F_{table}$ ($1.29 < 4.18$). It could be concluded that there is no difference variant between the XI IPA 4 class and XI IPA 5 class. It means that the variant is homogenous.

Appendix 19

Score of Experimental Class and Control Class on Post Test

1. Score of Experimental Class Post Test Using Cooperative Integrated Reading and Composition Technique

No	The Name of Students	Score of Post Test
1	Andri Syaputra	75
2	Alwin Fahri Srg	60
3	Aman Saleh Srg	70
4	Amirul Lubis	60
5	Arya Mukti Hrp	75
6	Efriana Sari Stp	80
7	Fadillah Riska	65
8	Fazri	80
9	Hijjah Fadilla	75
10	Holida Safitri	55
11	Inju Paramita	80
12	Lailatussifa Srg	55
13	Lenni Kesuma	75
14	Lidia	70
15	MHM. Fauzan Rangkuti	80
16	Nia Merianti	75
17	Nur Ainun Srg	90
18	Nur Asiah Lubis	75
19	Padilla Fitria	70
20	Raihan Daffa	65
21	Risky Amalia Hsb	90
22	Riski Amelia sari	80
23	Rosliana Hrp	70
24	Rahmi rezeki	75
25	Siti Hairani	90
26	Sri Yani	70
27	Ulfa Fauziah	90
28	Wahyu Putra	80
29	Yogi Eka Saputra	75
30	Yusril Ihza Mahendra	70
Total		2220

2. Score of Control Class Post Test Using Conventional Technique

No	The Name of Students	Score of Pre Test
1	Adella Puspita	70
2	Agung Adiansyah	65
3	Alisah Sanira	55
4	Anggi Fitria Lubis	90
5	Aulia Rahman Siregar	80
6	Baina	60
7	Desi Romadani	85
8	Dinda Hmidi Lubis	50
9	Doni Indra Wijaya Harahap	70
10	Fatima Sari Harahap	85
11	Fauzi Nasution	70
12	Fitriana Harahap	55
13	Indra Sulaiman	80
14	Irsyad Hamdi	65
15	Jamaluddin Siregar	65
16	Khoirul Sehat Siregar	80
17	Khoirun Nisa	70
18	Lasmaita	70
19	Madia	75
20	M. Zakwan johari Siregar	75
21	Nanda Yuspita	90
22	Nurhikmah	70
23	Nofrya Rahayu Shinta	75
24	Osama Siregar	75
25	Putri Diana	85
26	Putrid Nopriani Lubis	80
27	Rika Sasmita	75
28	Riski Maimunah Lubis	80
29	Ryan Fadli	80
30	Widia Safitri Nasution	65
Total		2190

Appendix 20

RESULT OF NORMALITY TEST IN POST TEST

A. RESULT OF THE NORMALITY TEST OF XI IPA-3 IN POST-TEST

1. The score of XI MIA- 3 class in post test from low score to high score:

55	55	60	60	65	65	70	70	70	70
70	70	75	75	75	75	75	75	75	75
80	80	80	80	80	80	90	90	90	90

2. High = 90
 Low = 55
 Range = High – Low
 = 90 - 55
 = 35

3. Total of Classes = $1 + 3,3 \log (n)$
 = $1 + 3,3 \log (30)$
 = $1 + 3,3 (1.47)$
 = $1 + 4.85$
 = 5.85
 = 6

4. Length of Classes = $\frac{range}{totalofclass} = \frac{35}{6} = 5.83 = 6$

5. Mean

Interval Class	F	X	x'	fx'	x' ²	fx' ²
85 – 90	4	87.5	+2	8	4	16
79 – 84	6	81.5	+1	4	1	6
73 – 78	8	75.5	0	0	0	0
67 – 72	6	69.5	-1	-6	1	6
61 – 66	2	63.5	-2	-4	4	8
55– 60	4	57.5	-3	-12	9	36
<i>i</i> = 6	30	-	-	-10	-	72

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

$$\begin{aligned}
&= 75.5 + 6 \left(\frac{-10}{30}\right) \\
&= 75.5 + 6 (-0.3) \\
&= 75.5 + 1.8 \\
&= 77.3
\end{aligned}$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum fx_i^2}{n} - \left(\frac{\sum fx_i}{n}\right)^2} \\
&= 6 \sqrt{\frac{72}{30} - \left(\frac{-10}{30}\right)^2} \\
&= 6 \sqrt{2.4 - (-0.3)^2} \\
&= 6 \sqrt{2.4 - 0.09} \\
&= 6 \sqrt{2.31} \\
&= 6 \times 1.51 = 9.06
\end{aligned}$$

Table of Normality Data Test with Chi Square Formula

Interval of Score	Real Upper Limit	Z - Score	Limit of Large of the Area	Large of area	f _h	f ₀	$\frac{(f_0 - f_h)}{f_h}$
85 - 90	90.5	1.45	0.4265	0.26	7.8	4	-0.487
79 - 84	84.5	0,79	0.2852	0.23	6.9	6	-0.130
73 - 78	78.5	0.13	0.0517	-0.24	-7.2	8	0.111
67 - 72	72.5	-0.52	0.30153	0.18	5.4	6	0.111
61 - 66	66.5	-1.19	0.11702	0.08	2.4	2	-0.166
55 - 60	60.5	-1.85	0.03216	0.02	0.6	4	5.666
	54.5	-2.51	0.00604				
						X ²	5.087

Based on the table above, the reseracher found that $x^2_{\text{count}} = 5.087$ while $x^2_{\text{table}} = 11.070$, cause $x^2_{\text{count}} < x^2_{\text{table}}$ ($8.927 < 11.070$) with degree of freedom (dk) = $6-1 = 5$ and significant level $\alpha = 5\%$. So distribution of XI IPA-4 class (post-test) is normal.

6. Median

No	Interval	F	Fk
1	55 – 60	4	4
2	61 – 66	2	6
3	67 – 72	6	12
4	73 – 78	8	20
5	79 – 84	6	26
6	85 – 90	4	30

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

$$Bb = 72.5$$

$$F = 12$$

$$fm = 8$$

$$i = 6$$

$$n = 30$$

$$1/2n = 15$$

So :

$$\begin{aligned} \text{Me} &= Bb + i \left(\frac{n/2 - F}{fm} \right) \\ &= 72.5 + 6 \left(\frac{15 - 12}{8} \right) \\ &= 72.5 + 6 (0,37) \\ &= 72.5 + 2.22 \\ &= 74.72 \end{aligned}$$

7. Modus

No	Interval	F	Fk
1	55 – 60	4	4
2	61 – 66	2	6
3	67 – 72	6	12
4	73 – 78	8	20
5	79 – 84	6	26
6	85 – 90	4	30

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

$$L = 75.5$$

$$d_1 = 2$$

$$d_2 = 2$$

$$i = 6$$

So,

$$\begin{aligned} M_o &= 75.5 + \frac{2}{2+2} 6 \\ &= 75.5 + 0.5 (6) \\ &= 75.5 + 3 \\ &= 78.5 \end{aligned}$$

RESULT OF NORMALITY TEST IN POST TEST

B. RESULT OF THE NORMALITY TEST OF XI IPA-4 IN POST-TEST

1. The score of XI MIA-3 class in pre test from low score to high score:

50	55	55	60	65	65	65	65	70	70
70	70	70	70	75	75	75	75	75	80
80	80	80	80	80	85	85	85	90	90

2. High = 90
 Low = 50
 Range = High – Low
 = 90 - 50
 = 40

3. Total of Classes = $1 + 3,3 \log (n)$
 = $1 + 3,3 \log (30)$
 = $1 + 3,3 (1.47)$
 = $1 + 4.85$
 = 5.85
 = 6

4. Length of Classes = $\frac{range}{totalofclass} = \frac{40}{6} = 6.66 = 7$

5. Mean

Interval Class	F	X	x	fx	x ²	fx ²
85 – 91	5	88	+3	15	9	45
78 – 84	6	81	+2	12	4	24
71 – 77	5	74	+1	5	1	5
64 – 70	10	67	0	0	0	0
57 – 63	1	60	-1	-1	1	1
50 – 56	3	53	-2	-6	4	12
<i>i</i> = 7	30	-	-	25	-	87

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

$$\begin{aligned}
&= 67 + 7 \left(\frac{25}{30}\right) \\
&= 67 + 7 (0.83) \\
&= 67 + 5.81 \\
&= 72.81
\end{aligned}$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum f x_i^2}{n} - \left(\frac{\sum f x_i}{n}\right)^2} \\
&= 7 \sqrt{\frac{87}{30} - \left(\frac{25}{30}\right)^2} \\
&= 7 \sqrt{2.9 - (0.14)^2} \\
&= 7 \sqrt{2.9 - 0.019} \\
&= 7 \sqrt{2.22} \\
&= 7 \times 1.48 = 10.36
\end{aligned}$$

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	$\frac{(f_0 - f_h)}{f_h}$
85 - 91	91.5	1.80	0.4641	0.09	2.7	5	0.722
79 - 84	84.5	1.12	0.3686	0.19	5.7	6	0.002
72 - 78	77.5	0.45	0.1736	-0.23	-6.9	5	2.958
65 - 71	70.5	-0.22	0.41294	0.22	6.6	10	0.260
57 - 64	63.5	-0.89	0.18673	0.12	3.6	1	0.518
50 - 56	56.5	-1.57	0.05821	0.04	1.2	3	2.250
	49.5	-2.25	0.0122				
X²							6.710

Based on the table above, the reseracher found that $x^2_{count} = 6.710$ while

$x^2_{table} = 11.070$, cause $x^2_{count} < x^2_{table}$ ($6.710 < 11.070$) with degree of freedom

$(dk) = 6-1 = 5$ and significant level $\alpha = 5\%$. So distribution of XI IPA-3 class (post-test) is normal.

6. Median

No	Interval	F	Fk
1	50 – 56	3	3
2	57 – 63	1	4
3	64 – 70	10	14
4	71 – 77	5	19
5	78 – 84	6	25
6	85 – 91	5	30

Position of Me in the interval of classes is number 3, that:

$$Bb = 67$$

$$F = 4$$

$$fm = 10$$

$$i = 7$$

$$n = 30$$

$$1/2n = 15$$

So :

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

$$= 67 + 7 \left(\frac{15-4}{10} \right)$$

$$= 67 + 7(1.1)$$

$$= 67 + 7.7$$

$$= 74.7$$

7. Modus

No	Interval	F	Fk
1	50 – 56	3	3
2	57 – 63	1	4

3	64 – 70	10	14
4	71 – 77	5	19
5	78 – 84	6	25
6	85 – 91	5	30

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

$$L = 67$$

$$d_1 = 9$$

$$d_2 = 5$$

$$i = 7$$

So,

$$\begin{aligned} M_o &= 67 + \frac{9}{9+5} 7 \\ &= 67 + 0.64 (7) \\ &= 67 + 4.48 \\ &= 71.48 \end{aligned}$$

Appendix 21

HOMOGENEITY TEST (POST-TEST)

Calculation of parameter to get variant of the first class as experimental class sample and variant of the second class as control class sample are used homogeneity test by using formula:

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

Hypotheses:

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

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

D. Variant of the XI IPA 3 class is:

NO	Xi	Xi ²
1.	55	3025
2.	55	3025
3.	60	3600
4.	60	3600
5.	65	4225
6.	65	4225
7.	70	4900
8.	70	4900
9.	70	4900
10.	70	4900
11.	70	4900
12.	70	4900
13.	75	5625
14.	75	5625
15.	75	5625
16.	75	5625
17.	75	5625
18.	75	5625
19.	75	5625
20.	75	5625
21.	80	6400

22.	80	6400
23.	80	6400
24.	80	6400
25.	80	6400
26.	80	6400
27.	90	8100
28.	90	8100
29.	90	8100
30.	90	8100
Total	2220	166900

$$n = 30$$

$$\sum xi = 2244$$

$$\sum xi^2 = 166900$$

So:

$$\begin{aligned}
 S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\
 &= \frac{30(166900) - (2244)^2}{30(30-1)} \\
 &= \frac{500700 - 4928400}{30(29)} \\
 &= \frac{78600}{870} \\
 &= 90.34
 \end{aligned}$$

E. Variant of the XI IPA 4 class is:

NO	Xi	Xi²
61.	50	2500
62.	55	3025
63.	55	3025
64.	60	3600
65.	65	4225
66.	65	4225
67.	65	4225
68.	65	4225
69.	70	4900
70.	70	4900

71.	70	4900
72.	70	4900
73.	70	4900
74.	70	4900
75.	75	5625
76.	75	5625
77.	75	5625
78.	75	5625
79.	75	5625
80.	80	6400
81.	80	6400
82.	80	6400
83.	80	6400
84.	80	6400
85.	80	6400
86.	85	7225
87.	85	7225
88.	85	7225
89.	90	8100
90.	90	8100
Total	2190	162850

$$N = 30$$

$$\sum xi = 2190$$

$$\sum_{xi}^2 = 162850$$

So:

$$\begin{aligned}
S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\
&= \frac{30(162850) - (2190)^2}{30(30-1)} \\
&= \frac{4885500 - 4796100}{30(29)} \\
&= \frac{89400}{870} \\
&= 102.75
\end{aligned}$$

The Formula was used to test the hypothesis was:

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

4. XI IPA 3 and XI IPA 4 :

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

So:

$$\begin{aligned} F &= \frac{102.75}{90.34} \\ &= 1.13 \end{aligned}$$

After doing the calculation, researcher found that $F_{\text{count}} = 1.13$. It had been compared to F_{table} with $\alpha 5\%$ and dk numerator and denominator were same (n_1 and $n_2 = 30$; $dk = 30-1 = 29$). From the distribution list F, researcher found that $F_{\text{table}} = 4.18$, so $F_{\text{count}} < F_{\text{table}}$ ($1.12 < 4.18$). It could be concluded that there is no difference variant between the XI IPA 3 class and XI IPA 4 class. It means that the variant is homogenous.

Appendix 22

T-test of the Both Averages in Pre-Test

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

$$Tt = \frac{X_1 - X_2}{\sqrt{\left(\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

$$Tt = \frac{60.6 - 57.4}{\sqrt{\left(\frac{(30 - 1)185.34 + (30 - 1)224.34}{30 + 30 - 2}\right)\left(\frac{1}{30} + \frac{1}{30}\right)}}$$

$$Tt = \frac{3.2}{\sqrt{\left(\frac{29(185.34) + 29(224.34)}{58}\right)\left(\frac{2}{30}\right)}}$$

$$Tt = \frac{3.2}{\sqrt{\left(\frac{5374.86 + 6524.13}{58}\right)(0.07)}}$$

$$Tt = \frac{3.2}{\sqrt{(205.155)(0.07)}}$$

$$Tt = \frac{3.2}{\sqrt{14.36}}$$

$$Tt = \frac{3.2}{3.78}$$

$$Tt = 0.846$$

Based on researcher calculation result of homogeneity test of the both averages, researcher found that $t_{\text{count}} = 0.846$ with opportunity $(1 - \alpha) = 1 - 5\% = 95\%$ and $dk = n_1 + n_2 - 2 = 30 + 30 - 2 = 58$, researcher found that $t_{\text{table}} = 1.67155$, because

$t_{\text{count}} < t_{\text{table}} (0.320 < 1.67155)$. So, H_a was rejected, it means that there is no difference in average between experimental class and control class in pre test.

Appendix 23

T-test of the Both Averages in Post-Test

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

$$Tt = \frac{X_1 - X_2}{\sqrt{\left(\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

$$Tt = \frac{77.3 - 72.81}{\sqrt{\left(\frac{(30 - 1)90.34 + (30 - 1)102.75}{30 + 30 - 2}\right)\left(\frac{1}{30} + \frac{1}{30}\right)}}$$

$$Tt = \frac{4.49}{\sqrt{\left(\frac{29(90.34) + 29(102.75)}{58}\right)\left(\frac{2}{30}\right)}}$$

$$Tt = \frac{4.49}{\sqrt{\left(\frac{2619.86 + 2979.75}{58}\right)\left(\frac{2}{30}\right)}}$$

$$Tt = \frac{4.49}{\sqrt{\left(\frac{5599.61}{58}\right)(0.07)}}$$

$$Tt = \frac{4.49}{\sqrt{(96.545)(0.07)}}$$

$$Tt = \frac{4.49}{\sqrt{6.758}}$$

$$Tt = \frac{4.49}{2.599}$$

$$Tt = 1.727$$

Based on researcher calculation result of homogeneity test of the both averages, researcher found that $t_{\text{count}} = 1.727$ with opportunity $(1 - \alpha) = 1 - 5\% = 95\%$ and $dk = n_1 + n_2 - 2 = 30 + 30 - 2 = 58$, $t_{\text{table}} = 1.67155$, cause $t_{\text{count}} > t_{\text{table}}$ ($1.727 > 1.67155$). It means that H_a was accepted, it means there was the difference average between experimental class and control class in post test. It can be concluded that there was the significant effect of Cooperative Integrated Reading and Composition technique on students' reading comprehension at grade XI SMA N 5 Padangsidempuan.



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Assalamu 'Alaikum Wr. Wb

Dengan hormat, Disampaikan kepada Bapak/Ibu bahwa berdasarkan hasil Sidang Tim Pengkaji Kelayakan Judul Skripsi, telah ditetapkan Judul Skripsi Mahasiswa tersebut dibawah ini sebagai berikut:

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Seiring dengan hal tersebut, kami akan mengharapkan kesediaan Bapak/Ibu menjadi pembimbing I dan Pembimbing II penelitian penulisan skripsi yang dimaksud.

Demikian kami sampaikan, atas kesediaan dan kerjasama yang baik dari Bapak/Ibu, kami ucapkan terimakasih.

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