THE COMPARATIVE STUDY OF STUDENTS' READING COMPREHENSION
BY USING RECIPROCAL TEACHING STRATEGY (RTS) AND
QUESTION-ANSWER RELATIONSHIP (QAR) STRATEGY
AT GRADE XI STUDENTS OF MAN SIPIROK

A THESIS

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

Written By :

DEWI SARTINI
Reg. Num. 14 203 00027

ENGLISH EDUCATION DEPARTMENT

TARBIYAH AND TEACHER TRAINING FACULTY
STATE INSTITUTE FOR ISLAMIC STUDIES
PADANGSIDIMPUAN
2018

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DEWI SARTINI
Reg. Num. 14 203 00027

ADVISOR I

Eka Sustri Harida, M.Pd.
NIP. 19750917 200312 2 002

ADVISOR II

Sojuangon Rambe, S.S., M.Pd.
NIP. 19790815 200604 1 003

ENGLISH EDUCATION DEPARTMENT

**TARBIYAH AND TEACHER TRAINING FACULTY
STATE INSTITUTE FOR ISLAMIC STUDIES
PADANGSIDIMPUAN
2018**

Term   : Munaqosyah   Padangsidimpuan, 8th June 2018
          a.n. **Dewi Sartini**

Item   : 6 (six) examplars   To:

                                       Dean Tarbiyah and Teacher Training Faculty

                                       In-

                                       Padangsidimpuan

Assalamu 'alaikum wr.wb.

     After reading, studying and giving advice for necessary revision on the thesis belongs to **Dewi Sartini**, entitled **"The Comparative Study of Students' Reading Comprehension by Using Reciprocal Teaching Strategy (RTS) and Question Answer Relationship (QAR) Strategy at Grade XI Students of MAN Sipirok".** We assumed that the thesis has been acceptable to complete the assignments and fulfill the requirements for graduate degree of Education (S.Pd.) in English Education Department, Tarbiyah and Teacher Training Faculty in IAIN Padangsidimpuan.

     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 Padangsidimpuan. Thank you.
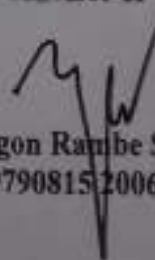
Wassalamu 'alaikum wr.wb.

Advisor I   Advisor II

Eka Sustri Harida, M.Pd.   **Sojuangon Rambe S.S., M.Pd.**
NIP. 19750917 200312 2 002   **NIP. 19790815 200604 1 003**

DECLARATION LETTER OF SELF THESIS COMPLETION

The name who signed here:

Name : **DEWI SARTINI**

Registration Number : 14 203 00027

Faculty/Department : Tarbiyah and Teacher Training Faculty/ TBI-1

The title of the Thesis : **The Comparative Study of Students' Reading Comprehension by Using Reciprocal Teaching Strategy (RTS) and Question Answer Relationship (QAR) Strategy at Grade XI Students of MAN Sipirok**

I hereby declare that I have arranged and written the thesis by myself, without asking for illegal help from the others, except the guidance from advisors, and without plagiarism as it is required in students' ethic code of IAIN Padangsidimpuan in article 14 verses 2.

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DEWI SARTINI
Reg. Num. 14 203 00027

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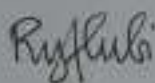
Padangsidimpuan, 8th June 2018

Signed

DEWI SARTINI

Reg. Num. 14 203 00027

EXAMINERS

SCHOLAR MUNAQOSYAH EXAMINATION

Name : Dewi Sartini
Reg. Num. : 14 203 00027
Faculty/Department : Tarbiyah and Teacher Training Faculty/English Education
Department
Thesis : The Comparative Study of Students' Reading Comprehension
by Using Reciprocal Teaching Strategy (RTS) and Question
Answer Relationship (QAR) Strategy at Grade XI Students of
MAN Sipirok

Chief,   Secretary,

Rayendriani Fahmei Lubis, M.Ag.   Eka Sustri Harida, M.Pd.
NIP.19710510 200003 2 001   NIP.19750917 200312 2 002
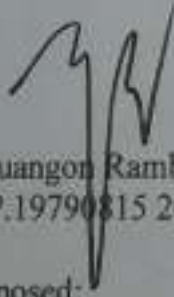
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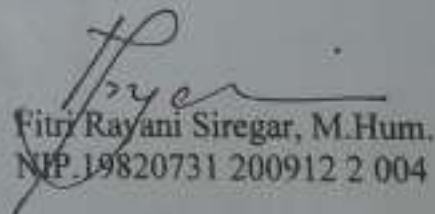
Rayendriani Fahmei Lubis, M.Ag.   Eka Sustri Harida, M.Pd.
NIP.19710510 200003 2 001   NIP.19750917 200312 2 002

Sojuangon Rambe, S.S., M.Pd.   Fitri Rayani Siregar, M.Hum.
NIP.19790815 200604 1 003   NIP.19820731 200912 2 004

Proposed:
Place : Padangsidimpuan
Date : July, 2nd 2018
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RELIGION MINISTRY INDONESIAN REPUBLIC
STATE INSTITUTE FOR ISLAMIC STUDIES PADANGSIDIMPUAN
TARBIYAH AND TEACHER TRAINING FACULTY
Alamat: Jl. H.T. Rizal Nurdin Km. 4,5 Telp. (0634) 22080 Sihitang 22733
Padangsidimpuan

LEGALIZATION

Thesis : The Comparative Study of Students' Reading Comprehension by Using Reciprocal Teaching Strategy (RTS) And Question-Answer Relationship (QAR) Strategy at Grade XI Students of MAN Sipirok
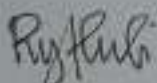
Written By : Dewi Sartini

Reg. Number : 14 203 00027

The thesis had been accepted as a partial fulfillment of the requirement for Degree of Education (S.Pd.)

Padangsidimpuan, July 2018
Dean

Dr. Lelya Hilda., M.Si.
NIP. 19720920 200003 2 002

Name   **: Dewi Sartini**
Reg. Number   **: 14 203 00027**
Faculty   **: Tarbiyah and Teacher Training**
Department   **: English Education Department (TBI-1)**
Title of Thesis   **: The Comparative Study of Students' Reading Comprehension by Using Reciprocal Teaching Strategy (RTS) and Question Answer Relationship (QAR) Strategy at Grade XI Students of MAN Sipirok**

ABSTRACT

This research was intended to examine the different effect of Reciprocal Teaching Strategy (RTS) and Question Answer Relationship (QAR) Strategy on Students' Reading Comprehension.

The research was experimental research. The population were all of the grade XI students of MAN Sipirok located at Dano Situmba in academic year 2017/2018. the sample were XI MIA-3 as experimental class 1 that consisted of 29 students and XI MIA-2 as experimental class 2 that consisted of 29 students. The data were collected through pre-test and post-test in *multiple choice* form about reading comprehension and analyzed by using t-test formula.

The finding showed that there was difference mean-score before and after using RTS and QAR Strategy. Mean-score of experimental class 1 before using RTS was 63.5 and mean-score after using RTS was 75.34. Meanwhile mean-score of experimental class 2 before using QAR Strategy was 63.48 and mean-score after using QAR was 73.78. The different score of both experimental classes was 1.58, with t_0 is higher than t_t (2.053 > 1.672). It means H_a was accepted. So, there was significant different effect of RTS and QAR Strategy on reading comprehension at Grade XI of MAN Sipirok.

Key Words*: Reciprocal Teaching, Question Answer Relationship, Reading Comprehension.*

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بِسْمِ اللهِ الرَّحْمَنِ الرَّحِيْمِ
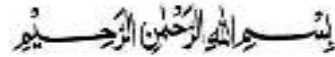
Alhamdulillah, Praised be to Allah swt, the most Creator and Merciful Who has given both patience and happiness to thank Him. Besides, peace and greeting be upon to the prophet Muhammad ﷺ who has brought the human from **the darkness era into the lightness era.**

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

Padangsidimpuan, May 31st , 2018
Researcher

Dewi Sartini
Reg. Num. 14 203 00027

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CHAPTER I

INTRODUCTION

A. The Background of the Problem

Reading as a one of the skills in English is very important. It is a process of getting the information from written language. It is not only found from the books, but also from another sources like internet, announcements, newspaper, advertisements, magazines, television news, maps, slogans and everything in written form. So, the reader will get information, increasing knowledge and perception, breaks boring, enrich vocabularies and improve writing by reading.

First, reading as an important way to get information is very essential for everyone. It is able to help the readers to solve their problems. For examples, a teacher is able to get learning materials and an effective strategy for teaching by reading books, students get answer for finishing their task, or other jobs, such as politicians, lawyers, lecturers, doctors, entrepreneurs, businessman, farmers and moreover for authors or writers. That is why reading must be done to be a good luck human.

Second, reading increases knowledge and perception. It is the most important way of getting knowledge in every single aspect of life. For instance to know about Islam, science, culture, politics, economy, law and others can be gotten from a research book, history, newspaper and so on. So, reading will make a reader know more about the life and world.

Third, when someone bored, reading an interesting thing is a good solution. For example, a reader reads a comic in a leisured time, reading story for pleasure, reading comedy for fun and others. In short, reading breaks a boring time and fit out leisure time.

Next, reading is able to enrich readers' vocabularies. When the readers read, they will find and get some new words in the text. It means, they will be easier to communicate to other people because they have mastery a lot of vocabularies.

The last, the reader can improve their writing by reading many sources or references. For example, an author needs many books and sources to support her or his argument for finishing a book. It means, reading is a previous step before writing, or reading is a requirement for a good writer.

Based on explanation above, it can be concluded that reading is a very essential activity for human's life. It is not only for students, but also for every people in the universe. Because the readers will get the information, get knowledge and perception, enrich vocabularies, improves writing and so on.

Reading for students is able to help them in understanding and comprehending their lessons. They will be easier for finishing their tasks after reading. For an example, to answer some questions base on a passage or to conclude a passage. So, students who are diligent to read their books and other lesson sources will be smart students.

It is contrary to most of students in MAN Sipirok. Based on information from one of the English teachers in MAN Sipirok[1], there are so many students who are not able to comprehend the text when they read. It can be proved from the score which students gott. The result of the second grade students' Mid Term Examination showed that their mean score (XI-MIA[3]) was 42.07 and it isstill under the score standard.[2] It means the students had not gotten their target in English lesson.

Similarly, the second grade students (XI MIA-2) of MAN Sipirok said that they were difficult to translate the text into Indonesia. It made them difficult to understand the text. So, when they read a text, they just read it, and did not know the meaning of what they read about. It means they could not understand and comprehend the text well.

There were some students' problems in reading comprehension. First, the students were lack of vocabularies. Vocabularies are needed for reading to comprehend the text. When the teacher ordered them to read, they translated the text word by word by opening dictionary, it made the meaning of the text unclear. Beside it, they were always confused when they find new unfamiliar words. They rarely tried to predict the meaning of unfamiliar words. So, the students could not comprehend a whole text well because they were lack of vocabularies.

[1]Ilhamsyah Siregar, *Private Interview*, recorded on October 6th, 2017 in MAN Sipirok.
[2]Students' Mid Score, *Document of XI MIA 3 of MAN Sipirok*, gottten on October 6th 2017 in MAN Sipirok.

Next, the students were lack of motivation in learning English. Most of students did not like study English. They were prefer to study other subjects rather than to study English. When the teacher asked them to use English in English lesson, most of students gave a response by using Indonesia or Bataknese. So do in reading, they supposed that reading is difficult without try to make it easier. The low motivation of the students in reading made them lazy to read, even to understand what they read. Therefore, motivation is an essential thing for students' reading.

The last, the researcher identified that the problem was not only come from the students, but also from the teacher. The teacher always uses the same way during teaching. He always begins his lesson by giving the topic that will be discussed by students. Next, he lets the students to find out the meaning and the purpose of their lesson. In the end of every meeting, the teacher helps the students to conclude their lesson.[3] It means the teacher always teach his students monotonously and has not apply the various ways to teach reading in the classroom. It isessential to introduce various reading strategy to students.

Due to the problems of the students, the English teacher has to teach the students by applying the appropriate strategy for reading. There are many reading strategies; First, Reciprocal Teaching Strategy (RTS) is designed to improve comprehension for middle school students who could decode but had

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[3]Ilhamsyah Siregar, *Private Interview*, recorded on October 6th, 2017 in MAN Sipirok.

difficulty comprehending text.[4] Second, Scanning Strategy is a reading strategy that quickly searching for some particular piece or pieces of information in a text. Next, Skimming Strategy gives reader the advantage of being able to predict the purpose of the passage, the main topic or message or possibly some of the developing or supporting ideas[5]. Question Answer Relationships (QAR) is a reading strategy which serves to assist the reader in connecting reading purpose to a text and to a personal information sources[6], and others. These various strategies are suitable and good to enjoy reading in daily life.

Based on strategies above, the researcher chose Reciprocal Teaching Strategy (RTS) and Question-Answer Relationship (QAR) Strategy to solve the students' problems. It refers to Yuli Ramita's research, she found that this strategy has positive effect on students' reading comprehension.[7] Beside it, the previous study conducted by Tri Anggeraini, Mukhaiyar & Hamzah on their research, they found that QAR strategy gives effect on students' reading comprehension of descriptive text.[8] Similarly, another previous study by Lilla Roosantie shows that the students taught using QAR achieved better scores in

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[4]Janette K. Klingner, et. al., *Teaching Reading Comprehension to Students with Learning Difficulties* (USA: The Guilford Pres, 2007), p. 131., *e-book* taken from *https://goo.gl/hD98Ke.*

[5]Douglas Brown, *Teaching by Principles* (USA: Prentice-Hall, Inc: 1994), p. 293.

[6]Donna E. Alverman, et. al., *Theoretical Models and Processes of Reading* (USA: International Reading Association (IRA), 2013), p. 1043-1044., *e-book* taken from *https://goo.gl/h4GrYZ.*

[7]Yuli Ramita, "The Effect of Reciprocal Teaching and Reading Interest Toward Students' Reading Comprehension of Third Semester STAIN Kerinci", on *Journal English Language Teaching (ELT),* Volume 1 Nomor 1, Maret 2015, retrieved from *https://goo.gl/YGzpRN on 2nd October 2017.*

[8]Tri Anggeraini , et. al., "The Effect of Question Answer Relationships (QAR) Strategy and Reading Motivation Toward Students' Reading Comprehension on Descriptive Text at Grade X of SMAN 4 Lubuklinggau", on *Journal English Language Teaching (ELT)*, volume 2 Nomor 1, Maret 2014, retrieved from *https://goo.gl/jrnYhx on 2nd October 2017.*

reading comprehension. In other words, QAR improves the students reading comprehension.[9] Besides, based on theory was introduced by Janette K. "Reciprocal Teaching Strategy (RTS) is designed to improve comprehension for middle school students who could decode but had difficulty comprehending text."[10] Meanwhile, Donna E. Alverman states "Question Answer Relationships (QAR) is a reading strategy which serves to assist the reader in connecting reading purpose to a text and to a personal information sources".[11] So, Reciprocal Teaching Strategy (RTS) and Question-Answer Relationship (QAR) Strategy has any effect on students' reading comprehension.

Based on the explanation above, the researcher was interested to conduct the research to solve the students' problems entitle "Reciprocal Teaching Strategy (RTS) and Question-Answer Relationship (QAR) Strategy to teach reading in the school. The researcher wants to know whether Reciprocal Teaching Strategy (RTS) and Question-Answer Relationship (QAR) Strategy affect students' reading comprehension, and how the comparison both of them. Based on above explanation, the researcher was interested to conduct the research to solve the problem about students' reading comprehension by using Reciprocal Teaching Strategy (RTS) and Question-Answer Relationship (QAR) Strategy at Grade XI Students of MAN Sipirok".

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[9]Lilla Roosantie, "The Effect of Question-Answer Relationship on The Reading Comprehension Score of The First Graders of SMK" on *Magister Scientiae*, Edisi No. 35 - Maret 2014, p. 25-46, retrieved from *https://goo.gl/jdZx8E* on 2nd *October 2017.*

[10]Janette K. Klingner, et. al., *Teaching Reading Comprehension ....*, p.131.

[11]Donna E. Alverman, et. al., *Theoretical Models ....*, p. 1043-1044.

B. The Identification of the Problem

Based on background of the problem above, teaching and learning English problems in reading at MAN Sipirok were:

1. The students were not able to comprehend the text well when they read.

2. The students were lack of vocabularies and rarely try to predict the meaning unfamiliar of words.

3. The students were lack of motivation in learning English.

4. The teacher taught his students monotonously and had not applied the various ways to teach reading in the classroom.

C. The Limitation of the Problem

Based on the identification of the problem, the research focused on students' problems on reading comprehension. Then the strategy is limited by using Reciprocal Teaching Strategy (RTS) and Question Answer Relationship (QAR) Strategy. So that the students' reading comprehension focused on report text.

D. The Definition of Operational Variables

The avoiding ambiguity, this research was consisted of three variables, so the definition of these variables can be described as follows:

1. Reciprocal Teaching Strategy (RTS)

Reciprocal Teaching Strategy (RTS) is a reading strategy for students' group discussion by applying four comprehension strategies; predicting, questioning, summarizing and clarifying. So, the students will be easier to

comprehend the text by discussing it and use the fourth comprehension strategies.

2. Question Answer Relationships (QAR) Strategy

   QAR strategy is a reading strategy after reading. It teaches students how to associate the answer to the question based on the text and their own knowledge. So, it will make them easier to comprehend and answer the question based on the text or what they have been read.

3. Students' Reading Comprehension

   Reading comprehension is a process of getting information from the outside, processing in mind and try to interpreted it to comprehend it. Therefore, students' Reading Comprehension means the students' ability in catching the meaning, understand and comprehend the text.

   So, the comparative study of students' reading comprehension by using Reciprocal Teaching Strategy (RTS) and Question Answer Relationship (QAR) Strategy means the study about the comparison of RTS and QAR Strategy in students' reading comprehension.

E. The Formulation of the Problem

The formulations of the problem in this research were:

1. How was the result of students' reading comprehension before using Reciprocal Teaching Strategy (RTS) and Question Answer Relationships (QAR) Strategy at grade XI students of MAN Sipirok?

2. How was the result of students' reading comprehension after using Reciprocal Teaching Strategy (RTS) and Question Answer Relationships (QAR) Strategy at grade XI students of MAN Sipirok?

3. Was there the different effect of Reciprocal Teaching Strategy (RTS) and Question Answer Relationships (QAR) Strategy on students' reading comprehension at grade XI students of MANSipirok?

F. The Objectives of the Research

The objectives of this research were:

1. To describe the result of students' reading comprehension before using Reciprocal Teaching Strategy (RTS) and Question Answer Relationships (QAR) Strategy at grade XI students of MAN Sipirok.

2. To describe the result of students' reading comprehension after using Reciprocal Teaching Strategy (RTS) and Question Answer Relationships (QAR) Strategy at grade XI students of MAN Sipirok.

3. To examine whether there is the different effect of Reciprocal Teaching Strategy (RTS) and Question Answer Relationships (QAR) Strategy on students' reading comprehensionat grade XI students of MAN Sipirok.

G. The Significances of the Research

The significances of the research were:

1. The result of the research can contribute useful information for the future classroom research with the similar problem of reading comprehension.

2. To the headmaster, the result of this research is expected to be useful to develop the English learning process where the headmaster can guide the English teacher to use these strategies in teaching English, even in reading.

3. To English teacher, to give information about reading strategy. So, it will be a teacher's source as an important strategy to apply in improving students' reading comprehension.

4. To other researchers, as an additional consideration to solve a reading problem when they find the same problem for their research.

H.   The Outline of the Thesis

This research was organized into five chapters. Each chapter consisted of many sub chapters with detail. Chapter one consisted of introduction, they are: the background of the problem, the identification of the problem, the limitation of the problem, the formulation of the problem, the purposes of the research, the significances of the research, the definition operational variables and the outline of the thesis.

Chapter two consist of theoretical description with some sub theory about reading comprehension, Reciprocal Teaching Strategy (RTS), Question Answer Relationships (QAR) strategy, the related findings, the conceptual framework and the hypothesis

Chapter three consist of methodology of the research, included in: the place and time of the research, the research design, the population and sample,

the research instrument, the validity and reliabity of instrument, and the technique of analysing data.

Chapter four is the result of the research talking about the analysis of the data. It is consist of description of data, hypothesis testing, discussion and the threats of research.

Chapter five consist of conclusion about the result of research and suggestion which is given by researcher.

CHAPTER II

THEORITICAL DESCRIPTION

A. The Theoretical Description

1. Reciprocal Teaching Strategy (RTS)

a. The Definition of Reciprocal Teaching Strategy

Reciprocal teaching is a cooperative reading technique developed by Palincsar and Brown for low-achieving readers in native language contexts.[1] Reciprocal Teaching is an instructional approach design to increase reading comprehension by encouraging students to use reading strategies. In a small group of four or five, students begin by all reading the first paragraph or passage of the same text silently.[2] It means Reciprocal Teaching Strategy is a reading strategy for cooperative reading by discussing paragraph by paragraph.

Reciprocal teaching is designed to improve comprehension for middle school students who could decode but had difficulty comprehending text. Students learn to use the four strategies of prediction, summarization, question generation, and clarification and to apply these while discussing text with the teacher and their peers. The teacher first models how to implement the strategies. Next, through

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[1]Anna Uhl Chamot, et. al*., The Learning Strategies Handbook* (Addison Wesley Longman: Longman, 1999), p. 106.

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

prompt, questions, and reminders, the teacher supports students' efforts to use the strategies while reading and discussing text.[3] So, reciprocal teaching strategy is a reading strategy for students' group discussion that consist of predicting, questioning, clarifying and summarizing that enable students to improve their reading comprehension.

b. The Procedures of Reciprocal Teaching Strategy

Procedures for teaching reading using RTS as explained by Palinscar and Brown as follows:

1) Scaffold student learning by modelling, guiding and applying the strategies while reading. Read a section of the text aloud and model the four steps – summarising, clarifying, questioning and predicting.
2) In groups of four allocate a role to each student i.e. summariser, questioner, clarifier and predictor.
3) Have students read a few paragraphs of a text selection. Suggest to students they use note- taking strategies such as underlining, coding, etc.
4) The predictor helps the group connect sections of the text by reviewing predictions from the previous section and helps the group predict what they will read about next by using clues and inferences in the text. The questioner helps the group to ask and answer questions about the text and reminds the group to use all types of questions (higher and lower order). The summariser restates the main ideas in the text and helps the group state the main idea or ideas in their own words. The clarifier helps the group find parts of the reading that are not clear and finds ways to clear up these difficulties.

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[3]Janette K. Klingner, et. al., *Teaching Reading Comprehension to Students with Learning Difficulties* (USA: The Guilford Pres, 2007), p.131., *e-book* taken from *https://goo.gl/hD98Ke*.

5) Roles in the group switch and the next selection of text is read. Students repeat the process in their new role. Repeat this process until text/topic selection is finished.[4]

From these procedure above can be concluded that the teacher just modeling the reading process and let the students to discuss the text during students' reading in using RTS.

c. The Implementation of Reciprocal Teaching Strategy

Palinscar and Brown select these strategies because they are the tactics good readers use to make sense of text. Below are the description, rationale and method for each the four strategies.

1) Predicting
   a) *Description:* predicting involves finding clues in the structure and content of a passage that might suggest what will happen next.
   b) *Rationale:* predicting activates prior knowledge and motivates students to continue.
   c) *Method:* to learn this strategy, students are instructed to use the title to make initial predictions about the story and then to use clues in the story to make additional predictions before reading each new paragraph or section of text, students share predictions with one another.
2) Clarifying
   a) *Description:* clarifying involves discerning when there is a breakdown in comprehension and taking step to restore meaning.
   b) *Rationale:* clarifying assures that the passage will make sense to the reader.
   c) *Method:* to learn this strategy, students are instructed to be alert to occasions when they aren't understanding the meaning of text, and when this occurs to process the text again. For instance, if a word did not make sense to the student, he or

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[4]National Behavior Support Service. (n.d*)., Reciprocal Teaching, Reading and Learning Strategy, Before, During and After Reading Strategy*, Retrieved from: *https://goo.gl/ps69xV* on 15th May, 2017.

she would be instructed to try to define the word by reading sentences that precede and follow it. Students are also taught to attend to words such as *or,* which may signal the meaning of unfamiliar word, and to be certain they know to what referents such as *them*, *it,* and *they* refer (anaphora). If, after rereading the passage, something is still not clear, students are instructed to request assistance.

3) Summarizing

    a) *Description:* a summary is a one- or two-sentence statement that tells the most important ideas contained in a paragraph or section of text. The summary should contain only the most important ideas and should not include unimportant details. A summary should be in the student's own words.

    b) *Rationale:* summarizing can improve understanding and memory of what is read.

    c) *Method:* students are instructed to locate the topic sentence of a paragraph. If there is no topic sentence, they are taught to make up their own topic sentence by combining the sentences they have underlined as containing the most relevant ideas. Students are then instructed to locate the most important details that support the topic sentence and to delete what is unimportant or redundant. Finally, they are instructed, to restate the main idea and supporting details in their own words.

4) Question generating

    a) *Description:* questions are constructed about important information, rather than about unimportant details, in the text.

    b) *Rationale:* question generation allows readers to self-test their understanding of a text and help them to identify what is important in the story.

    c) *Method:* to learn this strategy, students are instructed to select important information from the paragraph and use the words *who, how, when, where* and *why* to make up questions. Students are taught to ask questions about the main idea of a passage, question about important details, and questions for which the passage does not provide the answer.[5]

So, based on the description, rationale and method of each the four

strategies can be concluded that RTS help students to comprehend the

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[5]Janette K. Klingner, et. al., *Teaching Reading …….,* p. 134.

text before, during and after reading by applying predicting, clarifying, summarizing and question generating.

2. Question Answer Relationship (QAR) Strategy

a. The Definition of Question Answer Relationship (QAR) Strategy

Question Answer Relationship (QAR) Strategy is a reading strategy developed by Raphael in 1986 which serves to assist the readers in connecting reading purpose to text and to personal information sources.[6] This strategy is useful for novice readers or struggling readers who are having difficulty drawing inferences during listening and reading.[7] It means this strategy enables a reader to connect their aim for reading to what they read about.

Question Answer Relationship (QAR) Strategy is a procedure for enhancing students' ability to answer comprehension question by giving them a systematic means for analyzing task demands of different question probes.[8] It is also teaches them how to decode what types of questions they are being asked and where find the answers to them.[9] It is the very strong personal identification with learning that students develop. Their

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[6]Donna E. Alverman, et. al., *Theoretical Models and Processes of Reading* (USA: International Reading Association (IRA), 2013), p. 1043-1044., *e-book* taken from *https://goo.gl/h4GrYZ.*

[7]Sharon Walpole & Michael c. McKenna, *Differentiated Reading Instruction: Strategies for The Primary Grades* (USA: The Guilford Press, 2007), p. 114, *e-book* taken from *https://goo.gl/Rq2217.*

[8]Robert T. Tierney and John E. Readence, *Reading Strategies and Practice: A Compendium* (USA: Pearson Education, Inc, 2005), p. 274.

[9]Taffy E. Raphael & Kathryn h. Au, "QAR: Enhancing Comprehension and Test Taking Across Grades And Content Areas," *The Reading Teacher,* Vol.59, No. 3, 200, p. 206-221, taken from *https://goo.gl/c1DsT5.*

ideas and response are validated; their words became central to class study of a unit or topic.[10] It means QAR strategy helps students to identify different type of questions and it will make the easier in answering various types of questions.

QAR strategy teaches students that there are two broad sources of information for answering question: the text and their own background knowledge.[11] QAR shows students the relationship between questions and answers, how to categorize different types and levels of questions as well as how the text does not have all the answers. QAR helps students consider both information from the text and information from their own background knowledge.[12] So, QAR strategy teaches students how to associate answer to the questions by searching information from the text and their own background knowledge.

b. QARS Question Types

QARS teach students how to categorize questions by the type of information that is used to answer them. The illustration can drown as follow:[13]

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[10]Dianne Lapp, et. al, *Content Area Reading and Learning: Instructional Strategies* (USA: Lawrence Erlbaum Associates, Inc, 2004), p. 105, *e-book* taken from *https://goo.gl/UKGQAK*.

[11]Margaret Bouchard, *Comprehension Strategies for English Language Learners* (USA: Scholastic inc, 2005), p.36, *e-book* taken from *https://goo.gl/QS6R9w*.

[12]National Behavior Support Service. (n.d*)., Question Answer Relationship (QAR)*, Retrieved September 27th, 2017, taken from *https://goo.gl/FW67dl*.

[13]Robert T. Tierney and John E. Readence, *Reading Strategies……..,* p. 277.

Figure 1
QARS Question Types

In the Book QARs

Right There
The answer is in the text, usually easy to find. The words used to make up the question and words used to answer the question are **Right There** in the same sentence.

Think and Search
(Putting It Together)
The answer is in the story, but you need to put together different story parts to find it. Words for the question and words for the answer are not found in the same sentence. They come from different parts of the text.

In My Head QARs

Author and You
The answer is *not* in the story. You need to think about what you already know, what the author tells you in the text, and how it fits together.

On My Own
The answer is not in the story. You can even answer the question without reading the story. You need to use your own experience.

Based on illustration above, students can use the following QAR question types to analyze and answer teacher-initiated questions or to create their own questions:

1) *Right There*: answers to literal questions can be found in one sentence in the text. *Right There* questions contain wording that comes directly from the text, with an answer often found in a single sentence.

2) *Think and Search* questions are derived directly from the text, but the answer must be formulated across more than one sentence. Readers need to "think and search" or put together different parts of the text, to find the answer. The answer can be within a paragraph, across paragraphs, or even across chapters and book.

3) *The Author and Me* questions require students to connect information from the text to what they have already learned and many requires students to consider their own experiences or opinions or to extend what they have learned.

4) *On My Own* question can be answered from the reader's own experience without information from the text. It means the answer is not in the text. [14]

From explanation above can be concluded that both *Right There* and *Think and Search* question are categorized as explicit or *book* questions, it means the answers can be found in the book or directly in the text. Meanwhile both *The Author and Me* and *On My Own* questions are implicit or *brain* questions. It means the answers cannot be located directly in the text and must be formulated by connecting what the reader knows with the text.[15] Therefore, a reader who applies this strategy will

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[14]Taffy E. Raphael & Kathryn h. Au, "QAR: Enhancing …….., p. 206-221.
[15]Douglas Fisher & Nancy Frey, *Guided Instruction: How to Develop Confident and Successful Learners* (USA: ASCD, 2010), p. 29, *e-book* taken from *https://goo.gl/qqEUWd.*

be easier to correlate an answer for a question base on passage or their own background knowledge.

c. The Procedure of Question Answer Relationship (QAR) Strategy

The teacher are explicitly teaching Question-Answer Relationship Strategy in reading by using below procedures are:

1) Introduce the strategy showing the relationship of the Questions to Answers. An enlarged chart of this can be hung in the classroom where students can refer to it.
2) Create QAR questions from small sections of text (not longer than five sentences) for each of the four levels. Using these questions, model how each level of the QAR questions can be identified and answered. Discuss the differences between questions using the class textbook and subject exam papers.
   a) Right There: the answer is found in the text, usually as a phrase contained within one sentence.
   b) Think and Search: while the answer is in the text, the student is required to combine separate sections or pieces of text to answer the question.
   c) Author and You: as the answer is not directly stated in the text, the student draws on prior knowledge as well as what the author has written to answer the question.
   d) On Your Own: requires students to think about what is already known from their reading and experience (prior knowledge) to formulate an answer.
3) Give the students sample questions to answer in small groups and identify which of the QAR levels they used.
4) Have students work individually on questions from longer passages. Get students to examine the types of questions in their textbooks.[16]

These procedures above guide the researcher to apply the QAR strategy in teaching reading in classroom. So, student will be easier to generate the answer to any question by understanding and applying it.

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[16]National Behavior Support Service. (n.d)., *Question Answer* ....

3. Reading Comprehension

a. The Definition of Reading Comprehension

Reading is a fluent process of readers combining information from a text and their own background knowledge to build meaning.[17] In this case, a reader try to understanding the information base on text or what she or he has read. Beatrice S and Linda said that Reading is one of important way to improve general language skills in English.[18] So, reading can be said as a process of getting information from the text that able to improve general language skill.

Reading, as a skill, is normally linked with writing. This is a fundamental characteristic of the target academic situation in which students are typically reading books, journals, noting, summarizing, paraphrasing, and then writing essays, etc.[19] In foreign language learning, reading is likewise a skill that teachers simply apply expect learners to acquire.[20] It means reading is a basic way to get the target of academic situation.

Comprehension is part of life. Every waking minute, your brain is busy making sense of your world. It could be compared, in fact, to very

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[17]David Nunan, *Practical English Language Teaching,* 1ˢᵗ Edition (New York: McGraw Hill, 2003), p. 68.
[18]Beatrice S Mikulecky & Linda Jeffries, *More Reading Power* (USA: Addison Wesley Publishing Company, 1996), p. 1.
[19]R. R. Jordan, *English for Academic Purpose* (Cambridge: Cambridge University Press, 1997), p. 143.
[20]H. Doughlas Brown, *Language Assessment Principle and Classroom Practices* (San Fransisco State University: Longman, 2004), p. 185.

complicated computer. Message is constantly coming in about what you see, hear, smell, touch or taste. Your brain receives the messages, interprets them, sorts them, and saves them. In reading, the readers learn how to make sense of what they read and remember it.[21] It means comprehension is process of making understand or sense in the brain from what we see, touch, smell, hear or taste.

Reading comprehension means making sense of what you read and connecting the ideas in the text to what you already know. It also means remembering what you have read. In other words, comprehending means thinking while you read.[22] R.R. Jordan states that reading comprehension is an activity when readers read they try to concern with the subject-content of what they read and the language in which they express it.[23] In conclusion reading comprehension is an activity by looking a text and connecting it to reader's background knowledge in getting understanding.

Due to explanation above can be concluded that reading comprehension is reading a text by thinking while reading and connecting what the reader reads to their ideas or background knowledge in order to understand or comprehend the text.

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[21]Beatrice S Mikulecky & Linda Jeffries, *More Reading ….….., * p. 14.
[22]Linda Jeffries & Beatrice S. Mikulecky, *Advanced Reading Power, Extensive Reading, Vocabulary Building, Comprehension Skills, Reading Faster* (USA: Longman, 2007), p. 74.
[23]R. R. Jordan, *English for Academic ….….,* p. 143.

b. Models of Reading

Modes of reading can be said as a reading process. The models of reading can be divided into three categories: bottom-up models, top-down models, and interactive models.[24]

1) *Bottom-up models* 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.[25] *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.[26] It means, *bottom-up models* is a reading process where a reader start to read by the basic understanding up to the highest understanding or comprehension.

2) *Top down models* 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.[27] 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

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[24]David Nunan, *Practical English……..*, p. 70.
[25]J. Michael O'Malley & Lorraine Paldez Pierce, *Authentic Assessment……..,* p. 94.
[26]David Nunan, *Practical English ……..,* p. 70.
[27]J. Michael O'Malley & Lorraine Paldez Pierce, *Authentic Assessment……..,* p. 94.

understood even if all the individual words are not understood.[28] Within a top-down approach to reading the teacher should focus on meaning generating activities rather than on mastery of word recognition.

3) *Interactive models* 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".[29] Therefore, *interactive models* makes readers esier to get and understand the information from many sources.

So, when the readers read one of the third processes of reading above will be applied to get the point of their reading.

c. Principles in Teaching Reading Comprehension

David Nunan states that there are some principles for teaching reading, they are:

1) Exploit the reader's background knowledge.

Background knowledge includes all of experiences that a reader brings to a text: life experiences, educational experiences, knowledge of how text can be organized rhetorically, knowledge of how one's first language works, knowledge of how the second language works, and cultural background and knowledge. Reading comprehension can be

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[28]David Nunan, *Practical English........,* p. 71.
[29]*Ibid.,* p. 72.

significantly enhanced if background knowledge can be activated by setting goals, asking questions, making predictions, teaching text structure, and so on. If students are reading on unfamiliar topic, you may need to begin the reading process by building up background knowledge.

2) Build a strong vocabulary base.

Basic vocabulary should be explicitly taught and L2 readers should be taught to use context to effectively guess the meanings of less frequent vocabulary.

3) Teaching for comprehension.

Cognition can be defined as thinking. Metacognition can be defined as thinking about our thinking. In order to teach comprehension, the readers must monitor their comprehension processes and be able to discuss with the teacher or fellow readers what strategies they use to comprehend. By doing this, the readers use both their cognitive and metacognitive skills.

Questioning the author is an excellent technique for engaging students in meaningful cognitive and metacognitive interactions with text and for assisting students in the process of constructing the meaning from text. Beck et. al. emphasize that this activity is to be done during the reading process, not after reading. Students learn to engage with meaning and develop ideas rather than retrieve information from the

text. Use of this approach engages the teacher and readers in queries about the text as the material is being reading.

4) Work in increasing reading rate.

The teacher must work towards finding a balance between assisting students to improve their reading rate and that the focus is not to develop *speed* reader*s*, but *fluent* readers. A fluent reader is a reader who reads at a rate of 200 words-per minute with at least 70 percent comprehension.

5) Teach reading strategies.

To achieve the desire result in reading, students need to learn how to use a range of reading strategies that match their purposes for reading. Teaching them how to do this should be a prime consideration in the reading class room.

A good technique to sensitize students to the strategies they use is to get them to verbalize (or talk about) their thought processes as they read. Readers can listen to the verbal report of another reader who has just read the same material, and it is often revealing to hear what other readers have done to get meaning from a passage.

6) Encourage readers to transform strategies into skills.

The use of the skill takes place outside the direct consciousness of the reader. The goal for explicit strategy instruction is to move readers

from conscious control reading strategies to unconscious use of reading skills.

7) Build assessment and evaluation into your teaching.

Assessing growth and development in reading requires time and training. Both quantitative and qualitative assessment activities should be included in the reading classroom. Quantitative assessment will include information from reading comprehension tests as well as reading rate data. Qualitative information can include reading journal responses, reading interest surveys, and responses to reading strategy checklist.

8) Striver for continuous improvement as a reading teacher.

Reading teachers need to be passionate about their work. They should view themselves as facilitator, helping each reader discover what works best. The good reading teacher actively teaches students what to do. To succeed, you need more than classroom tips and techniques: you need to understand the nature of the reading process.[30]

So, a good reading teacher should apply above principles in teaching reading to make his/her students easier to understand and comprehend the passage.

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

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[30]David Nunan, *Practical English………,* p. 74-78.

1) Identify your purpose in reading text.
2) Applying spelling rules and conventions for buttom-up decoding.
3) Use lexical analysis (prefixes, roots, suffixes, etc.) to determine meaning.
4) Guess at meaning (of words, idiom, etc.) when you aren't certain.
5) Skim the text for the gist and for main ideas.
6) Scan the text for specific information (names, dates, key words).
7) Use silent reading techniques for rapid processing.
8) Use marginal notes, outlines, chart, or semantic map for understanding and retaining information.
9) Distinguishing between literal and implied meaning.
10) Capitalize on discourse markers to process relationship.[31]

Therefore an English teacher can apply these principles in teaching reading comprehension to make teaching-learning process more successful.

d. Factors Relating to Efficient Strategies in Reading

Gillet states that there are several factors relating to efficient strategies in reading, they are:

1) Understanding meaning: deducing the meaning of unfamiliar words, relations within the sentences, implication, and conceptual meaning.
2) Understanding relationships in the text: the structure, the communicative value of sentences, relation between the part of a text through lexical and grammatical cohesion devices and indicators in discourse.
3) Understanding important points: distinguishing the main ideas from supporting detail, recognizing unsupported claims and claims supported by evidence.
4) Reading efficiently: surveying the text, chapters, paragraphs, skimming for the main idea or general information, scanning to find specially required information, reading quickly.

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[31]H. Doughlas Brown, *Languange Assessment ....,* p. 188.

5) Note taking and acknowledgements.[32]

So, a reader should pay attention several factors that relate to reading strategy to make reading strategy more efficient, as explained above.

e. **Assessing Reading**

Assessment is ongoing process that encompasses a much wider domain.[33] Routman states that in order for reading assessment teachers should consider the following:

1) Be thoroughly familiar with developmental learning processes and curriculum.
2) Articulate a philosophy of assessment and evaluation.
3) Know about and have experience collecting, recording, interpreting and analyzing multiple sources of data.
4) Be flexible and willing to try out multiple assessment procedures.
5) Be committed to understanding and implementing an approach to evaluation that informs students and directs instruction.[34]

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

Beside it, there are some basic points to remember in the assessment of reading of English language learners, they include:

1. Activities for assessing reading should be based on activities for teaching reading.
2. Assessment of reading, like instruction, takes planning, time, and experience.

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[32]Jonathan Sarwono and Yudhy Purwanto, *English for Academic Purposes* (Yogyakarta: ANDI OFFSET, 2013), p. 1-2.

[33]H. Doughlas Brown, *Languange Assessment….,* p. 4.

[34]J. Michael O' Malley and Lorraine Valdez Pierce, *Authentic Assessment for....,* p. 97-98.

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.[35]

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

There are some indicators in assessing students' reading, as follow:[36]

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 specific information of the text
3	Able to identify detail information of the text
4	Able to get the meaning of the text (words or sentences)

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[35] *Ibid.,* p. 132-133.

[36] Silabus, "Bahasa Inggris-Wajib SMA Kelas XI", Kurikulum 2013, retrieved from *www.jagoanbahasainggris.com* on Saturday, October 21st, 2017.

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

4. **Report Text**

a. **The 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.[37] It means that report text is a text that tells readers about factual information of something or particular thing.

b. **The Structural Element of Report Text**

Text elements of report text are 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.

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[37]Pardiyono, *Pasti Bisa! Teaching Genre-Based Writing* (Yogyakarta: Penerbit ANDI, 2007), p. 271.

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]

So, the reader can see each element above in every report text when they read it.

c. **The Grammar Pattern of Report Text**

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

1) use present form

2) use declarative sentences

3) use conjunctions.[39]

The three grammar pattern above are commonly use in report text. It means there are another grammar pattern that can be used in report text.

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[38]*Ibid.,* p. 275-276.
[39]*Ibid.,* p. 275.

d. The Example of Report Text

Title

Spiders

General
Statement

Spiders are not insects, as many people think, nor even nearly related to them. One can tell the difference almost at a glance for a spider always has eight legs and an insect never more than six.

Description

How many spiders are engaged in this work on our behalf? One authority on spiders made a census of the spiders in a grass field in the south of England, and he estimated that there was more than 2,250,000 in one acre; that is something like 6,000,000 spiders of different kinds on a football pitch. Spiders are busy for at least half the year in killing insects.

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. The Review of Related Findings

This research is not the first research that had been done, there were some research related to this research: First, Pausiah on her research find and concludes that 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_o is higher than t_t (2.18 > 1.67).[40] So, the implication of reciprocal strategy is better than conventional strategy.

Next, Hosseini Faard & Rimani Nikou in their research shows that using Question-Answer Relationship (QAR) Strategy in the experimental group improve the students' reading comprehension.[41] The mean score of pre-test of the experimental group was 5.7857 and the mean score of post-test was 7.25. So, the mean score difference is 1.4625 and it shows that there is a positive effect of Question-Answer Relationship (QAR) Strategy on students' reading comprehension.

Third, Yuli Anita Pakpahan in her 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 $t_{count} = 7.837 > t_{table} = 1.67$.[42] In conclusion, the students who are taught by QAR strategy got higher scores than students who are taught by KWL strategy.

The last, Ismaidah on her research find and concludes that there is the effect of collaborative strategy to students' reading comprehension, where the

[40]Pausiah "The Effect of Reciprocal Teaching Strategy to Students' Reading Comprehension at Grade VII SMP Negeri 5 Padangsidimpuan", *Unpublished Thesis,* (Padangsidimpuan: IAIN Padangsidimpuan, 2014).

[41]Hosseini Faard & Rimani Nikou, "The Effect of Question-Answer Relationship (QAR) Strategy on First Grade High School EFL Students' Reading Comprehension", *International Journal of Language Learning and Applied Linguistict Word (IJLLALW),* Vol.7 (2), October 2014), p. 300-312, retrieved from *https://goo.gl/rAXPAG,* on Friday, October 20th, 2017.

[42]Yuli Anita Pakpahan "The Effect of Implementing KWL and QAR Strategies on Students' Reading Comprehension with Different Motivation", retrieved from *https://goo.gl/FfrZ6S,* on Friday, October 20th, 2017.

pre-test mean score is 62.48 and the post-test mean score was 86.52, with t_o is higher than t_t (4.22 > 1.67).[43] So, the implication of collaborative strategy is better than conventional strategy.

Due to the previous research, the researcher concluded that the both Reciprocal Teaching Strategy (RTS) and Question Answer Relationships (QAR) Strategy can increase students' reading comprehension. In this case, the researcher had done a research by conducting Reciprocal Teaching Strategy (RTS) and Question Answer Relationships (QAR) Strategy to increase students' reading comprehension. The researcher hopes this research can complete and contribute the previous findings.

C. The Conceptual Framework

Reading is a way of getting information. Many people are difficult to comprehend the text, so do students of MAN Sipirok especially in the second grade. They have some problems in reading comprehension, for instance difficult to comprehend a passage, lack of vocabularies, less of motivations and have not known the appropriate strategy for reading. Reciprocal Teaching Strategy and Question Answer Relationship Strategy are reading strategies that help students to comprehend what they read about. So by applying both strategies, the students will be easier to understand and comprehend their reading. The researcher illustrates the conceptual framework as follow:

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[43]Ismaidah, "The Effect of Collaborative Strategy on Students' Reading Comprehension at Grade X SMAN 3 Panyabungan", *Unpublish Thesis,* (Padangsidimpuan: IAIN Padangsidimpuan, 2016).

Figure 2
Conceptual Framework

The students are difficult to understand and comprehend the text; lack of vocabularies, lack of motivation, the teacher always teaches his students monotonously and has not applied the various strategy to teach reading in the classroom.

Experimental Class 1
With RTS (XI MIA 3)

Experimental class 2
With QARS (XI MIA 2)

Pre-test

Reciprocal Teaching
Strategy

Question Answer
Relationsip Strategy

Post-test

Reading Comprehension Achievement

Hypothesis

H_a=Accepted

H_0=Rejected

D. The Hypothesis

The hypothesis presents the researcher's expectations about the relationship between variables within the question of this research.[44] A hypothesis states what we are looking for and it is a proposition which can be put to a test to determine its validity.[45] The hypotheses of this research were:

1. There was the different effect of Reciprocal Teaching Strategy (RTS) and Question Answer Relationship Strategy on Students' Reading Comprehension at Grade XI Students of MAN Sipirok.

2. There was no the different effect of Reciprocal Teaching Strategy (RTS) and Question Answer Relationship Strategy on Students' Reading Comprehension at Grade XI Students of MAN Sipirok.

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[44]Donald Ary, et. al., *Introduction to Research in Education 8th Edition* (Canada: WADSWORTH, CENGAGE Learning, 2010), p. 81.
[45]C.R.Kothary, *Research Methodology, Methods and Techniques* (New Delhi: New Age International (P) Ltd., Publishers, 2004), p. 184.

CHAPTER III

RESEARCH METHODOLOGY

A. The Place and Schedule of the Research

This research had been conducted at MAN Sipirok. It was located at Dano Situmba Village in Sipirok. It was done from October 2017 up to May 2018. The subject of this research was the eleventh grade of the students.

B. The Research Design

The kind of this research was quantitative research with experimental method. Quantitative research uses objective measurement to gather numeric data that are used to answer question or test predetermined hypothesis.[1] L. R Gay and Peter Airasian state that experimental research is the only type of research that can test hypothesis to establish cause and effect.[2] Similarly, Ary, et. al., state that experimental research involves a study of the effect of the manipulation of one variable on another variable.[3] It means that to know the cause and effect between a variable to another variable, a researcher can apply experimental research.

The researcher chosen two classes in this research. The first class was taught by using Teaching Strategy (RTS) called as experimental class 1. Meanwhile the second class was taught by using Question Answer

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[1]Donald Ary, et. al., *Introduction to Research in Education 8ᵗʰ Edition* (Canada: WADSWORTH, CENGAGE Learning, 2010), p. 22.

[2]L. R Gay and Peter Airaisan, *Educational Research for Analysis and Application* (America: Prentice Hall, 1992)., p. 367.

[3]Donald Ary, et. al., *Introduction to Research ....,* p. 26.

Relationships (QAR) Strategy called as an experimental class 2. It could be seen as the following table.

Table 2
Research Design

Class	Pre-test	Treatment	Post-test
Experiment Class 1	√	RTS	√
Experiment Class 2	√	QAR	√

C. The Population and Sample

1. Population

The population as the data sources of this research were all of the second grade students of MAN Sipirok at Situmba Village that consist of four classes. It could be seen in the following table:

Table 3
Population of the Research

No	Class	Students
1	XI MIA-2	39
2	XI MIA-3	29
3	XI IIS-2	30
4	XI IIS-3	32
TOTAL		120

2. Sample

The researcher chose two classes as a sample in this research. The first class as experiment class 1 was taught by using Reciprocal Teaching

Strategy (RTS). Meanwhile the second class as experiment class 2 was taught by using Question Answer Relationships (QAR) Strategy

The researcher used simple random sampling to take the sample. The basic characteristic of simple random sampling is that all members of the population have an equal and independent chance of being included in the random sample.[4] So, the researcher chose two classes that have similar competence in English based on their pre-test score result, and the information from the teacher. After that, the researcher used normality and homogeneity test.

Normality test is used to know whether the data of research is normal or not. To know the normality, the researcher use *Chi-Square* formula. The formula is as follow:[5]

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

Where: x^2 = value of chi-square

f_o = observed frequency

f_h = expected frequency

To calculate the result of *Chi- Chi-Square*, it is used significant level 5% (0,05) and degree of freedom is (dk= k-1). If result $x^2_{count} < x^2_{table}$, the data is distributed normal.

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[4]Donald Ary, et. al., *Introduction to ...…..,*p. 150.
[5]*Ibid.,* p. 188.

Homogeneity test is used to know whether both experimental class have the same variant or not. If both classes are same, it can be called homogenous. To find the homogeneity, the researcher will use *Harley test*.

The formula is as follow:[6]

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

Hypotheses is accepted if $F_{(count)} \leq F_{(table)}$

Hypotheses is rejected if $F_{(count)} \geq F_{(table)}$

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

Based on above explanation, to know the normality and homogeneity of the sample, the researcher had given the pre-test to the four classes (XI MIA-2, XI MIA-3, XI IIS-2 and XI IIS-3).

After calculating the data, the researcher had found that the homogen class and got the same variant were XI MIA-2 and XI MIA-3 (see Appendix 17 and 19). So, the researcher chose the both classes as a sample. XI MIA-2 class consisted of 29 students and XI MIA-3 class consisted of 29 students.

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[6]Agus Irianto, *Statistik Konsep Dasar dan Aplikasinya* (Jakarta: Kencana, 2009), p. 276.

Table 4
Sample of the Research

Experimental Class 1	Experimental Class 2	Total
XIA MIA 3 = 29	XI MIA 2 = 29	58

D. The Instrument of the Research

Instrument is a tool that can be used by the researcher to collect the data. Tests are valuable measuring instrument for educational research. A test is a set of stimuli presented to individual in order to elicit responses in the basis of which a numerical score can be assigned.[7] In this research, t he researcher will use a test as instrument in collecting data.

The test that was used in this research is multiple choice test consists of four options a, b, c, and d. The researcher used students as participant. The researcher observed then controlled all the students involve this research during do the test. This test was given to exprimental class 1 and experimental class 2. Each question was given 5 score to get the students' score in answering the questions. So, the maximum score of test is 100.

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[7]Donald Ary, et. al., *Introduction to Research……...,* p. 201.

Table 5
The Indicators Reading Comprehension Test of Pre- Test

NO	Indicators of Reading Assessment	Item	Number of Items	Score	Total Score
1	Able to identify the main idea of the text	6	2, 5, 7, 15, 17, 19	5	30
2	Able to identify specific information of the text	6	1, 9, 10, 13,16, 18	5	30
3	Able to identify detail information of the text	4	3, 4, 8, 11	5	20
4	Able to get the meaning of the text (word or sentence)	4	6, 12, 19, 20	5	20
	Total	20		5	100

Table 6
The Indicator of Reading Comprehension Test of Post-Test

NO	Indicators of Reading Assessment	Item	Number of Items	Score	Total Score
1	Able to identify the main idea of the text	5	1, 5, 8, 14, 20	5	25
2	Able to identify specific information of the text	7	4, 6, 7, 9, 12, 13, 17	5	35
3	Able to identify detail information of the text	4	2, 15, 18, 19	5	20
4	Able to get the meaning of the text (word and sentence)	4	3, 10, 11, 16	5	20
	Total	20		5	100

E. The Validity and Reliability Instrument

1. The Validity

Gay and Airasian states that validity is the most important characteristic a test or measuring instrument can possess. It is concerned with the appropriateness of the interpretations made from test score.[8] In this research, the researcher used item validity to find out the validity of instrument. It is equally important that the items and question cover the full range of the issue or attitude being measure.[9] Before validity, the test consist of 50 questions of multiple choice questions, 25 for pre-test and 25 for post-test. Meanwhile, after validity the test consiat of 40 questions, 20 for pre-test and 20 for post-test.

To know the validity of the each question was refer to list r biserial with r_t *in 5% significant*: 0, 396 and 1% significant: 0, 463. So, if $r_{count} > r_{table}$ the test is classified valid.The formula of *r point biserial* can be used as follow:

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

Where:

r_{pbi} : coefficient item validity

M_p : mean score

[8] L. R. Gay and Peter Airasian, *Educational Research ....…..,* p. 161.
[9] Sugiyono, *Metode Penelitian Pendidikan* (Bandung: Alfabeta, 2013), p. 177.

M_t : mean score of the total score

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.[10]

2. The Reliability

Reliability is the degree of accuracy or precision in the measurements made by a research instrument.[11] An instrument of the research must be reliable. A reliable test is consistent and dependable.[12] Reliability of an instrument can be found by using K-R 20 formula.[13] The formula is as follow:

$$R_{11} = \left(\frac{n}{n-1} \right) \left(\frac{S_{t^2} - \Sigma pq}{S_{t^2}} \right)$$

Where:

R_{11} : Reliability of the Instrument

N : Total of Question

St^2 : Variants Total

p : Proporsi Subject who is right Answer(1)
                        n

q : Proporsi Subject who is Wrong Answer (0)
                        n

[10]Anas Sudijono, *Pengantar Statistik Pendidikan* (Jakarta: Raja Grafindo Persada, 2008), p. 258.

[11] L. R. Gay and Peter Airasian, *Educational Research ...…..,* p. 181.

[12] H. Douglas Brown, *Language Assessment…,* p. 20.

[13] Suharsimi Arikunto, *Prosedur Penelitian* (Jakarta: Rineka Cipta, 1998), p. 182.

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

F. The Procedures of the Research

The procedures of the research were pre-test, treatment and post-test. The description can be seen as follows:

1. Pre-Test

It is a test that was given before doing the treatment. It was needed to know the students' ability before the researcher gives the treatment to experimental class. It was also used to find out the homogeneity and normality level of the sample. The researcher used some steps in giving pre-test, they were:

a. The researcher prepared the test that will be filled by the students. It consists of 20 questions.

b. The researcher distributed the test paper to both classes; experimental class 1 & experimental class 2.

c. The researcher explained what the students need to do.

d. The researcher gave the times to the students to answer the questions.

e. The researcher collected the test paper.

f. The researcher checked the answer and counts the students' score.

2. Treatment

In the treatment, the researcher divided the second grade of MAN Sipirok into two classes, as experimental class 1 and experimental class 2, and have taught reading to them by different ways. The researcher taught experimental class 1 (XI MIA-3) by using Reciprocal Teaching Strategy, and experimental class 2 (XI MIA-2) by using Question Answer Relationship Strategy.

The researcher used some steps in teaching by using Reciprocal Teaching Strategy, they were:

a. The researcher first presented all the strategies during reading; Summarizing, clarifying, questioning and predicting.

b. A group of four students was then selected, and each was given a different role i.e. summarizer, questioner, clarifier and predictor.

c. Next, the researcher asked the group of students to read a paragraph of text.

d. The predictor helped his peers to connect previous part of the text by making a prediction based on the clues given from the title or illustrations before reading. Then, the researcher asked the students to discuss the results of their predictions with their team. Then they are asked to read the text again in order to confirm their predictions.

e. Next, the questioner's job was to help his group ask questions and answer questions about the text discussed in order to find out detailed information.

f. The task of the summarizer was to help his group to find the main ideas based on his and his peers' points of view.

g. The clarifier helped the group to find unclear parts (words and sentence) and ways to solve these difficulties.

h. When the next part of the text was read, the students rotated their roles with their peers in their group. Again the students repeated the process consistent with their new role. Then the whole discussion process was repeated until the whole text has been read.

i. The researcher asked the students to keep on applying the four strategies until they have the ability to use these strategies independently.

Another class have taught by Question Answer Relationship has some steps as follow:

a. The researcher introduced the strategy showing the relationship of the Questions to Answers.

b. The researcher creates QAR questions from small sections of text (not longer than five sentences) for each of the four levels. Using these questions, model how each level of the QAR questions can be

identified and answered. Discuss the differences between questions using the class textbook and subject exam papers.

1) Right There: the answer is found in the text, usually as a phrase contained within one sentence.

2) Think and Search: while the answer is in the text, the student is required to combine separate sections or pieces of text to answer the question.

3) Author and You: as the answer is not directly stated in the text, the student draws on prior knowledge as well as what the author has written to answer the question.

4) On Your Own: requires students to think about what is already known from their reading and experience (prior knowledge) to formulate an answer.

c. The researcher gave the students sample questions to answer in small groups and identify which of the QAR levels they used.

The researcher lets students work individually on questions from longer passages. Get students to examine the types of questions in their textbooks.

3. Post-Test

It was a test that was given to students after the treatment to experiment class. It was used to know the difference score of experiment class 1 and 2, and the effect of treatment, whether it has an effect or not.

The researcher used some steps in giving post-test, they were:

a. The researcher prepared the test that will be filled by the students. It consists of 20 questions.

b. The researcher distributed the test paper to the two experiment classes.

c. The researcher explained what the students need to do.

d. The researcher gave the times to the students to answer the questions.

e. The researcher collected the test paper.

f. The researcher checked the answer and counts the students' score.

So, the researcher gave twice test to the students in getting the data, and gave treatment to both class (using RTS and QAR during reading class) after doing pre-test or before doing post-test.

G. The Technique of Data Analysis

The techniques of data analysis was used by the researcher are:

1. Scoring Technique

To know the score, the researcher used the steps below:

a. Total maximal score was 100

b. True answer was given 5 score and there's no score for false answer. Total score 5 x 20 = 100

2. Requirement Test

    a. Normality test

To know the normality, the researcher used *Chi-Square* formula. The formula is as follow:[14]

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

Where:

x^2 =   value of chi-square

f_o =   observed frequency

f_h =   expected frequency

    b. Homogeneity Test

To find the homogeneity, the researcher used *Harley test*. The formula is as follow:[15]

$$F = \frac{the\ biggest\ variant}{the\ smallest\ variant}$$

Hypotheses is accepted if $F_{(count)} \leq F_{(table)}$

Hypotheses is rejected if $F_{(count)} \geq F_{(table)}$

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

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[14] Donald Ary, et. al., *Introduction to Research* ...…, p. 188.

[15] Agus Irianto, *Statistik Konsep* ...….., p. 276.

3. **Hypothesis Test**

Before analysing the data to find the hypothesis, the researcher calculated the normality and homogeneity of the post-test. It was used to know whether the data is normal and homogenous or not. If the data is normal and homogenous, the formula that must be used to test hypothesis is t-test but if the data is not normal and homogenous, the formula that must be used to test hypothesis is Chi-Quadrate. Because the result of post-test in this research was normal and homogenous, the data was analyzed by using *t-test* formula. The formula is as follow:[16]

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

Where:

t : the value which the statistical significant

$\overline{X_1}$: the average score of the experimental class 1

$\overline{X_2}$: the average score of the experimental class 2

s_1^2 : deviation standard of the experimental class 1

s_2^2: deviation standard of the experimental class 2

n_1 : number of experimental class 1

n_2 : number of experimental class 2

[16] Sugiyono, *Statistika untuk Penelitian* (Bandung: ALFABETA, 2014), p. 138.

CHAPTER IV

DATA ANALYSIS

As mentioned in earlier chapter, in order to evaluate the effect of using Reciprocal Teaching Strategy and Question Answer Relationship Strategy on students' reading comprehension and its comparison, the researcher had calculated the data using pre-test and post-test. 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 Reciprocal Teaching Strategy and Question Answer Relationship Strategy

a. Score of Pre-test Experimental Class 1

In pre-test of experimental class 1, the researcher calculated the result that had been gotten by the students in answering the question (test). The score of pre-test experimental class 1 can be seen in the following table:

Table 7
The Score of Experimental Class 1 in Pre-test

Total	1735
Highest score	85
Lowest score	30
Mean	63.5
Median	64.78
Modus	51.1

Range	55
Interval	9
Standard deviation	13.14
Variants	147.3

Based on the above table the total score of experimental class 1 in pre-test was 1375, mean was 63.5, standard deviation was 13.14, variants was 147.3, median was 64.78, range was 55, modus was 51.1, interval was 9. The researcher got the highest score was 85 and the lowest score was 30. It can be seen on appendix 19.

From the mean score above, could be known that the level of students' reading comprehension in experimental class 1 before using RTS was 63.5. It meant in the enough level. It based on the table below:[1]

Table 8
Level of the Score

Interval	Predicate	Description
85-100	A	Very Good
70-84	B	Good
55-69	C	Enough
40-54	D	Less
0-39	E	Fail

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[1] Oemar Hamalik, *Teknik Pengukur dan Evaluasi Pendidikan* (Bandung: Mandar Maju, 1989), p.122.

Then, the computed of the frequency distribution of the students'
score of experiment class can be applied into table frequency distribution
as follow:

Table 9
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	30 – 38	34	1	3.45%
2	39 – 47	43	4	13.80%
3	48 – 56	52	9	31.03%
4	57 – 65	61	6	20.69%
5	66 – 74	70	3	10.34%
6	75 – 83	79	4	13.80%
7	84 – 92	88	1	3.4%
$i = 9$			29	100%

From the table above, the students' score in class interval between 30
– 38 was 1 students (3.4%), class interval between 39 – 47 was 4 students
(13.80%), class interval between 48 – 56 was 9 students (31.03%), class
interval between 57 – 65 was 6 students (20.69%), class interval between 66 –
74 was 3 students (10.34%), class interval between 75 – 83 was 4 students
(13.80%) and the last class interval between 84 – 92 was 1 students (3.4%).

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

Figure 3: Description Data Pre-Test of Experimental Class 1
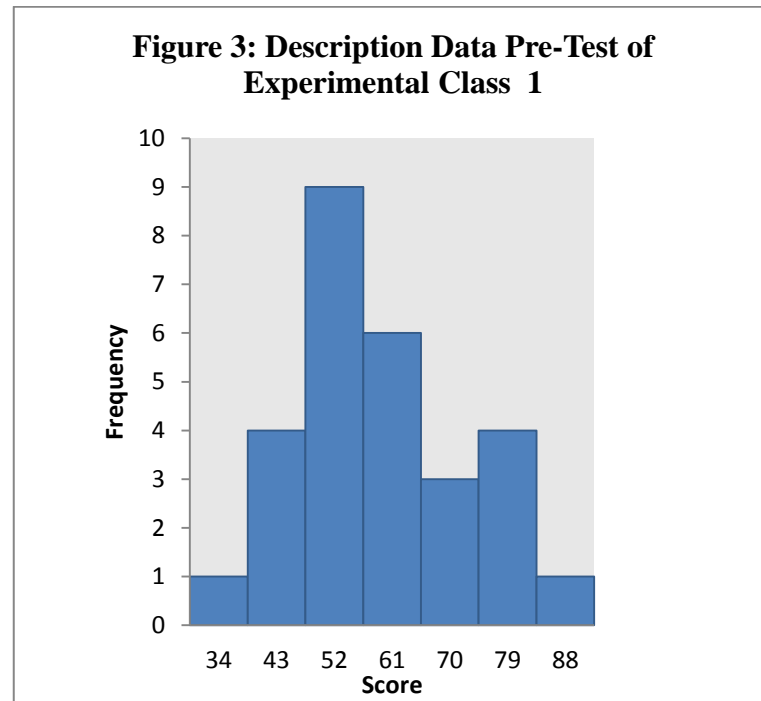
From the histogram above, the students' score 34 was 1 students, the students' score 43 was 4 students, the students' score 52 was 9 students, the students' score 61 was 6 students, the students' score 70 was 3 students, the students' score 79 was 4 students, and the last students' score 88 was 1 students.

b. Score of Pre-Test Experimental Class 2

In pre-test of experimental class 2, the researcher calculated the result that had been gotten by the students in answering the question

(test). The score of pre-test experimental class 2 can be seen in the following table:

Table 10
The Score of Experimental Class 2 in Pre-test

Total	1710
Highest score	85
Lowest score	30
Mean	63.48
Median	67.75
Modus	62.89
Range	55
Interval	9
Standard deviation	15.84
Variants	252.46

Based on the above table the total score of experiment class 2 in pre-test was 1710, mean was 63.48, standard deviation was 15.84, variants was 252. 46, median was 67.75, range was 55, modus was 62.89, interval was 9. The researcher got the highest score was 85 and the lowest score was 35. It can be seen on appendix 19.

From the mean score above, could be known that the level of students' reading comprehension in experimental class 2 before using QAR Strategy was 63.5. It meant in the enough level. It based on the description level in table 8.

Then, the computed of the frequency distribution of the students'

score of experimental class 2 can be applied into table frequency

distribution as follow:

Table 11
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	30 – 38	34	4	13.80%
2	39 – 47	43	3	10.34%
3	48 – 56	52	5	17.24%
4	57 – 65	61	10	34.48%
5	66 – 74	70	2	6.90%
6	75 – 83	79	2	6.90%
7	84 – 92	88	3	10.34%
$i = 9$			29	100%

From the table above, the students' score in class interval between 30–

38 was 4 students (13.80%), class interval between 39 – 47 was 3 students

(10.34%), class interval between 48 – 56 was 5 students (17.24%), class

interval between 57 – 65 was 10 students (34.48%), class interval between 66

– 74 was 2 students (6.90%), class interval between 75 – 83 was 2 students

(6.90%) and the last class interval between 84 – 92 was 3 students (10.34%)

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

Figure 4: Description Data Pre-Test of Experimental Class 2
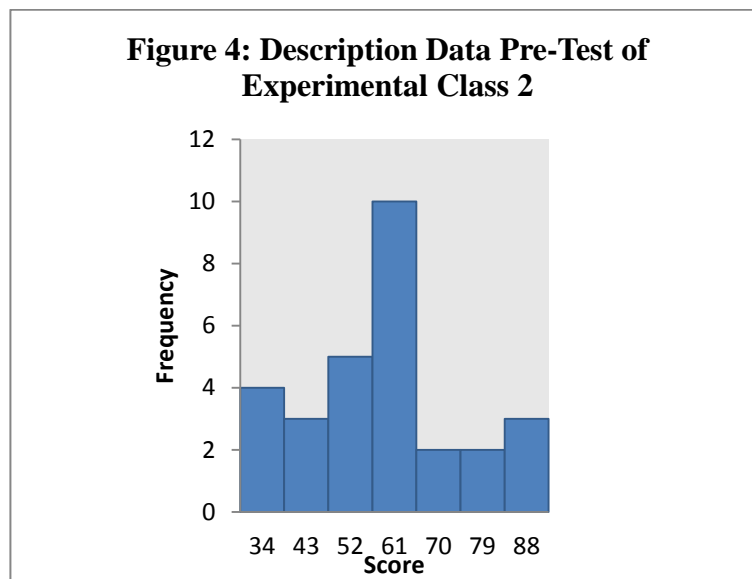
From the histogram above, the students' score 34 was 4 students, the students' score 43 was 3 students, the students' score 52 was 5 students, the students' score 61 was 10 students, the students' score 70 was 2 students, the students' score 79 was 2 students, and the last students' score 88 was 3 students.

c.   **The Comparison between Description Data Pre-Test of Experimental Class 1 and 2**

Based on above histogram, researcher compared between description data pre-test of experimental class 1 and description data of experimental class 2 on the following figure:

Figure 5 : Description Data Pre-Test of Experimental Class 1 and 2
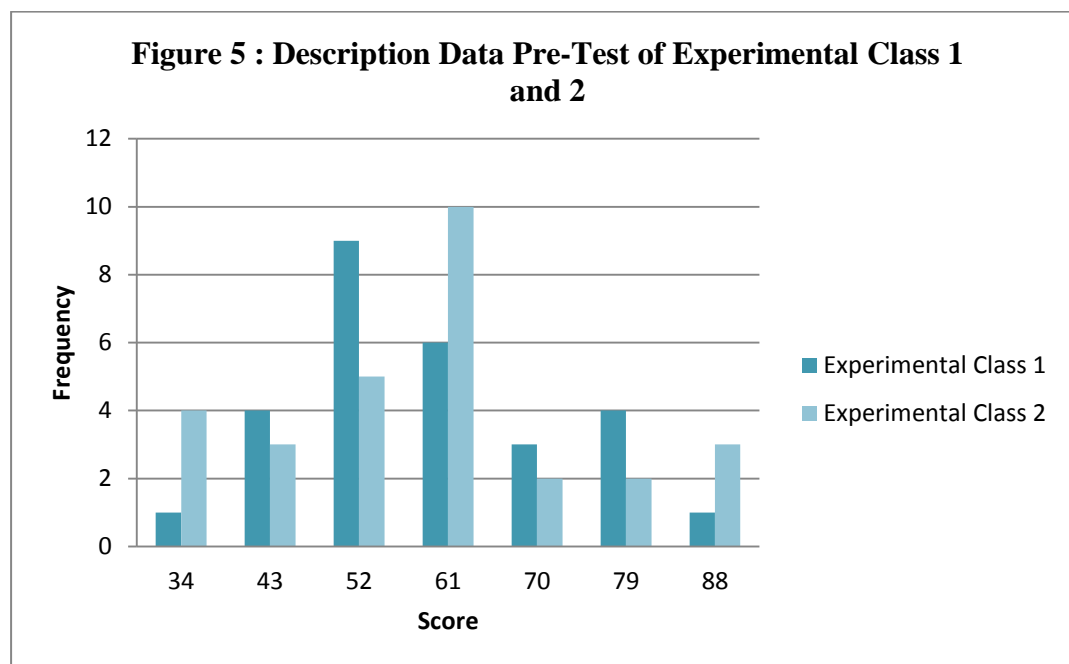
From the histogram above, the students' scores of experimental class 1 was higher than the students' scores of experimental class 2.

2.   **The Description of Data After Using Reciprocal Teaching Strategy and Question Answer Relationship Strategy**

a.   **Score of Post-Test Experimental Class 1**

In post-test of experimental class 1, the researcher calculated the result that had been gotten by the students in answering the question (test)

after the researcher did the treatment by using Reciprocal Teaching Strategy. The score of post-test experimental class1 can be seen in the following table:

Table 12
The Score of Experimental Class 1 in Post-test

Total	2150
Highest score	95
Lowest score	60
Mean	75.34
Median	74.5
Modus	75
Range	35
Interval	6
Standard deviation	7.26
Variants	55.48

Based on the above table the total score of experiment class 1 in post-test was 2150, mean was 75.34 standard deviation was 7.26, variants was 55.48, median was 74.5, range was 35, modus was 86.75, interval was 6. The researcher got the highest score was 95 and the lowest score was 60. It can be seen on appendix 20.

From the mean score above, could be known that the level of students' reading comprehension in experimental class 1 after using RTS was 75.34. It meant in the good level. It based on the description level in table 8.

Then, the computed of the frequency distribution of the students'
score of experiment class can be applied into table frequency distribution
as follow:

Table 13
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	60 – 65	62.5	3	10.34%
2	66 – 71	68.5	9	31.03%
3	72 – 77	74.5	11	37.93%
4	78 – 83	80.5	3	10.34%
5	84 – 89	86.5	1	3.44%
6	90 – 95	92.5	2	6.90%
$i = 6$			29	100%

From the table above, the students' score in class interval between 60
– 65 was 3 students (10.34%), class interval between 66 – 71 was 9 students
(31.03%), class interval between 72 – 77was 11 students (37.93%), class
interval between 78 – 83 was 3 students (10.34%), class interval between 84 –
89 was 1 students (3.44 %), and the last class interval between 90 – 95 was 2
students (6.90%).

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

Figure 6: Description Data Post-Test of Experimental Class 1
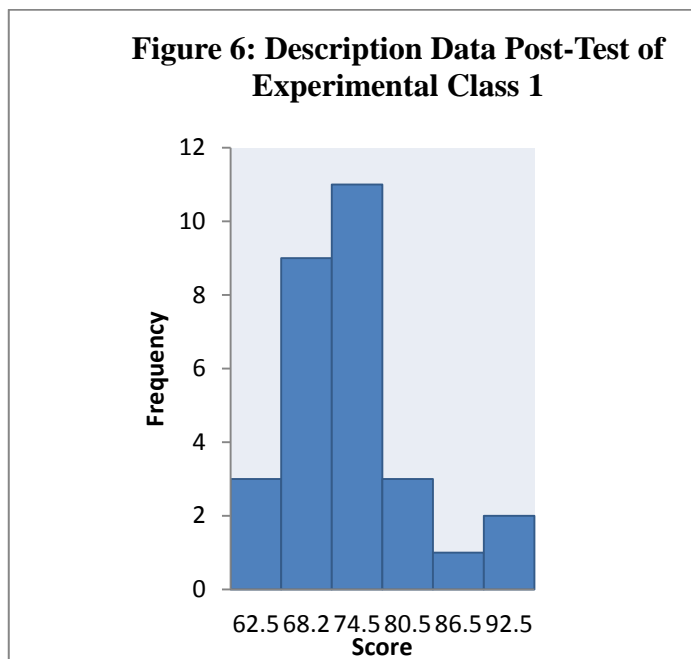
From the histogram above, the students' score 62.5 was 3 students, the students' score 68.5 was 9 students, the students' score 74.5 was 11 students, the students' score 80.5 was 3 students, the students' score 86.5 was 1 students, and the last the students' score 92.5 was 2 students.

b. Score of Post-Test Experimental Class 2

In post-test of experimental class 2, the researcher calculated the result that had been gotten by the students in answering the question (test) after the researcher taught the reading comprehension by using Queston

Answer Relationship Strategy. The score of post-test experimental class 2 can be seen in the following table:

Table 14
The Score of Experimental Class 2 in Post-test

Total	2170
Highest score	95
Lowest score	60
Mean	73.78
Median	71.7
Modus	68.2
Range	35
Interval	6
Standard deviation	11.31
Variants	88.36

Based on the above table the total score of experimental class 2 in post-test was 2170, mean was 73.78, standard deviation was 11.11, variants was 88.36, median was 71.7, range was 35, modus was 68.2, interval was 6. The researcher got the highest score was 95 and the lowest score was 60 It can be seen on appendix 20.

From the mean score above, could be known that the level of students' reading comprehension in experimental class 2after using QAR Strategy was 73.78. It meant in the good level. It based on the description level in table 8.

Then, the computed of the frequency distribution of the students' score

of experimental class 2 can be applied into table frequency distribution as

follow:

Table 15
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	60 – 65	62.5	5	17.24%
2	66 – 71	68.5	10	34.48%
3	72 – 77	74.5	5	17.24%
4	78 – 83	80.5	2	6.90%
5	84 – 89	86.5	4	13.79%
6	90 – 95	92.5	3	10.34%
$i =6$			29	100%

From the table above, the students' score in class interval between 60

– 65 was 5 students (17.24%), class interval between 66 – 71 was 10 students

(34.48%), class interval between 72 – 77 was 5 students (17.24%), class

interval between 78 – 83 was 2 students (6.90%), class interval between 84 –

89 was 4 students (13.79 %), and the last class interval between 90 – 95 was 3

students (10.34%).

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

Figure 7: Description Data Post-Test of Experimental Class 2
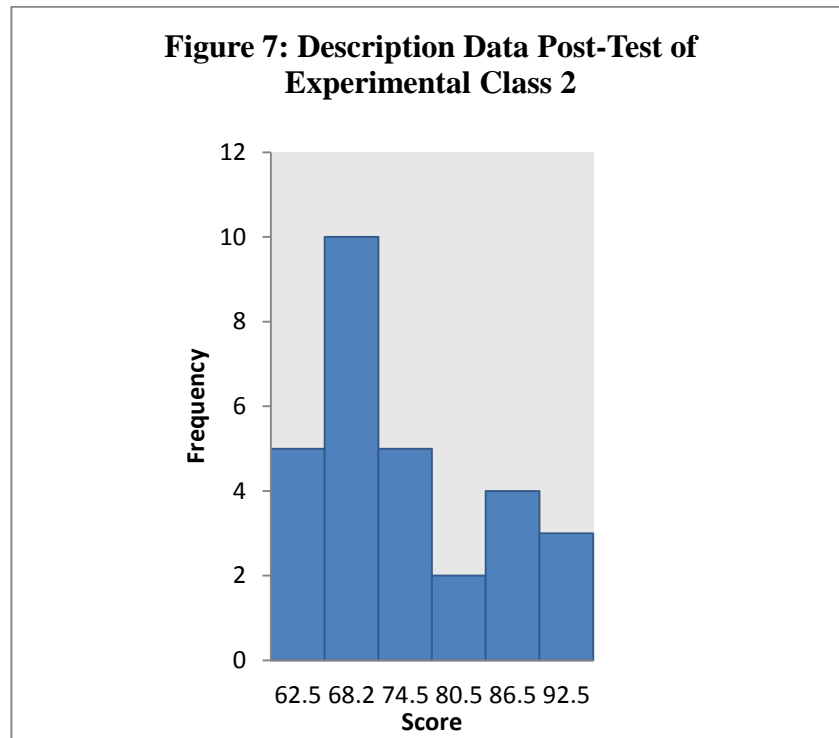
From the histogram above, the students' score 62.5 was 5 students, the students' score 68.5 was 10 students, the students' score 74.5 was 5 students, the students' score 80.5 was 2 students, the students' score 86.5 was 4 students, and the last the students' score 92.5 was 3 students.

c. The Comparison between Description Data Post-Test of Experimental Class 1 and 2

Based on above diagram, researcher compared between description data post-test of experimental class 1 and description data of experimental class 2 on the following figure:

Figure 8 : Description Data Post-Test of Experimental Class 1 and 2
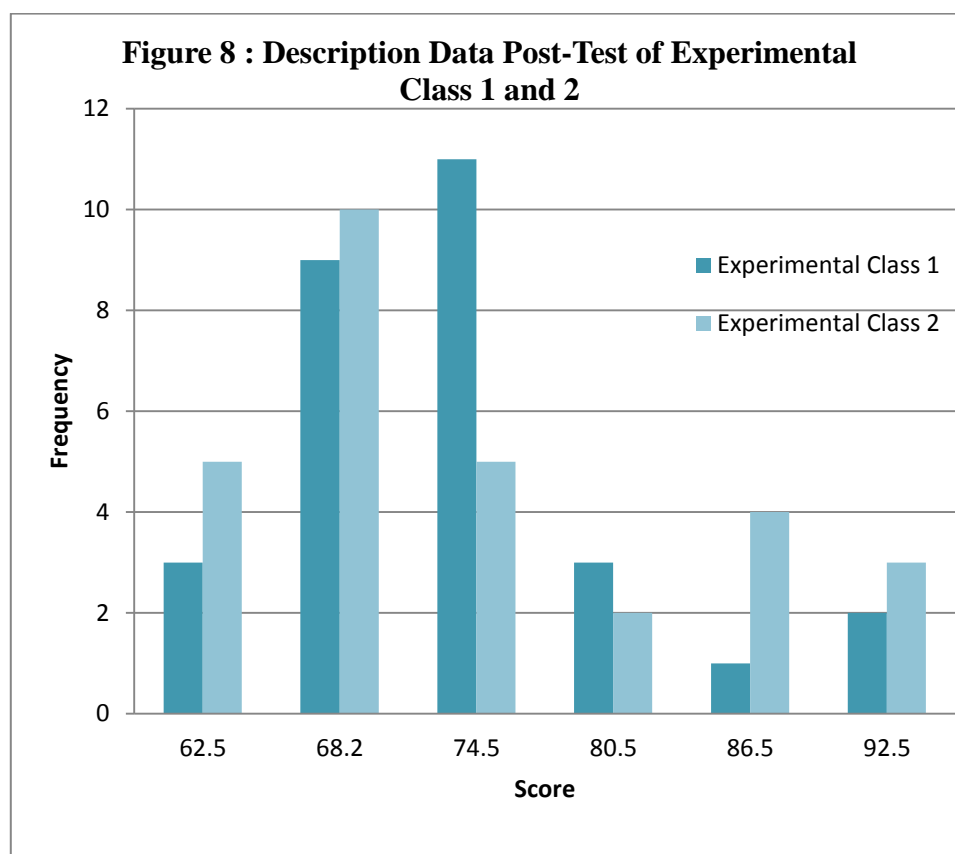
From the histogram above, the students' scores of experimental class 1 was higher than the students' scores of experimental class 2.

3. **The Comparison Data of RTS and QAR (Pre-Test and Post-Test)**

a. **The Comparison Data between Pre-Test and Post-Test of Experimental Class 1 (Reciprocal Teaching Strategy)**

The comparison score between pre-test and post-test of experimental class 1 can bee seen in the following table:

Table 16
The Comparison Data of Experimental Class 1
in Pre-test and Post-Test

Description	Pre-Test	Post-Test
Total	1735	2150
Highest score	85	95
Lowest score	30	60
Mean	63.5	75.34
Median	64.78	74.5
Modus	51.1	75
Range	55	35
Interval	9	6
Standard deviation	13.14	7.26
Variants	147.3	55.48

Based on the above table the total score of experimental class 1 in pre-test was 1735; post-test was 2150, pre-test mean score was 63.5; post-test was 75.34, pre-test standard deviation was 13.14; post-test was 7.26, pre-test variants was 147.3; post-test was 55.48, pre-test median was 64.78; post-test was 74.5, pre-test range was 55; post-test was 35, pre-test modus was 51.1; post-test was 75, 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 30; meanwhile the highest score of post-test was 95 and the lowest score was 60.

In order to get the pre-test and post-test data description of experimental class 1clearly and completely, the researcher presents the histogram on the following figure**:**

Figure 9 : Description Data Pre-Test and Post-Test Experimental Class 1
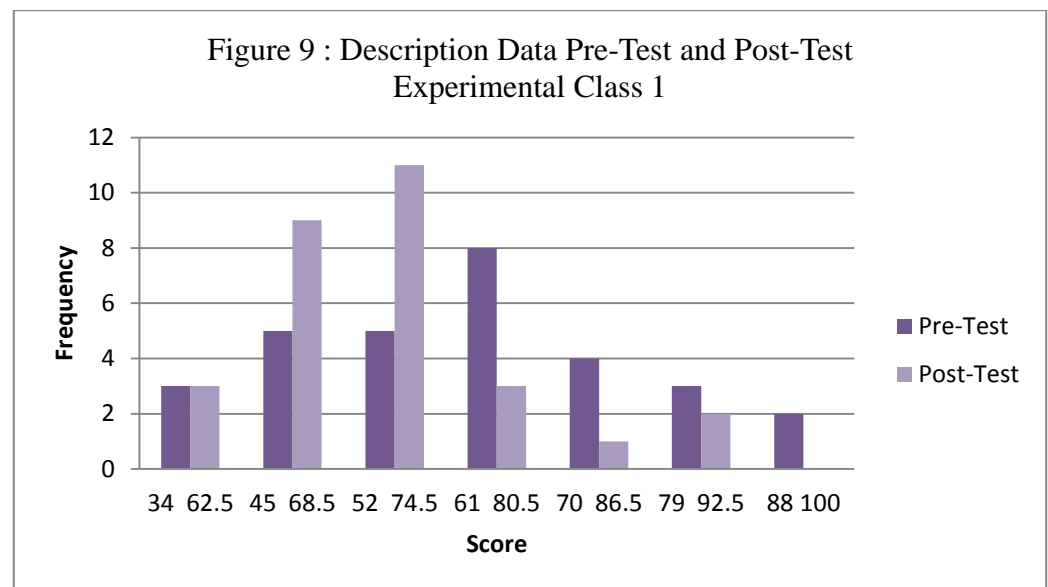
From the histogram above, the students' scores of experimental class 1 in post-test was higher than pos test.

b. **The Comparison Data of Pre-Test and Post-Test of Experimental Class 2 (Question Answer Relationship Strategy)**

The comparison score between pre-test and post-test of experimental class 2 can bee seen in the following table:

Table 17
The Comparison Data of Experimental Class 2
in Pre-test and Post-test

Description	Pre-test	Post-test
Total	1710	2170
Highest score	85	95
Lowest score	30	60
Mean	63.48	73.78
Median	67.75	71.7
Modus	62.89	68.2
Range	55	35
Interval	9	6
Standard deviation	15.84	11.31
Variants	252.46	88.36

Based on the above table the total score of experimental class 2 in pre-test was 1710; post-test was 2170, pre-test mean score was 63.48; post-test was 73.78, pre-test standard deviation was 15.84; post-test was 11.31, pre-test variants was 252.46; post-test was 88.36, pre-test median was 67.75; post-test was 71.7, pre-test range was 55; post-test was 35, pre-test modus was 62.89; post-test was 68.2, 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 30; meanwhile the highest score of post-test was 95 and the lowest score was 60.

In order to get the pre-test and post-test data description of experimental class 2 clearly and completely, the researcher presents the histogram on the following figure**:**

Figure 10 : Description Data Pre-Test and Post-Test Experimental Class 2
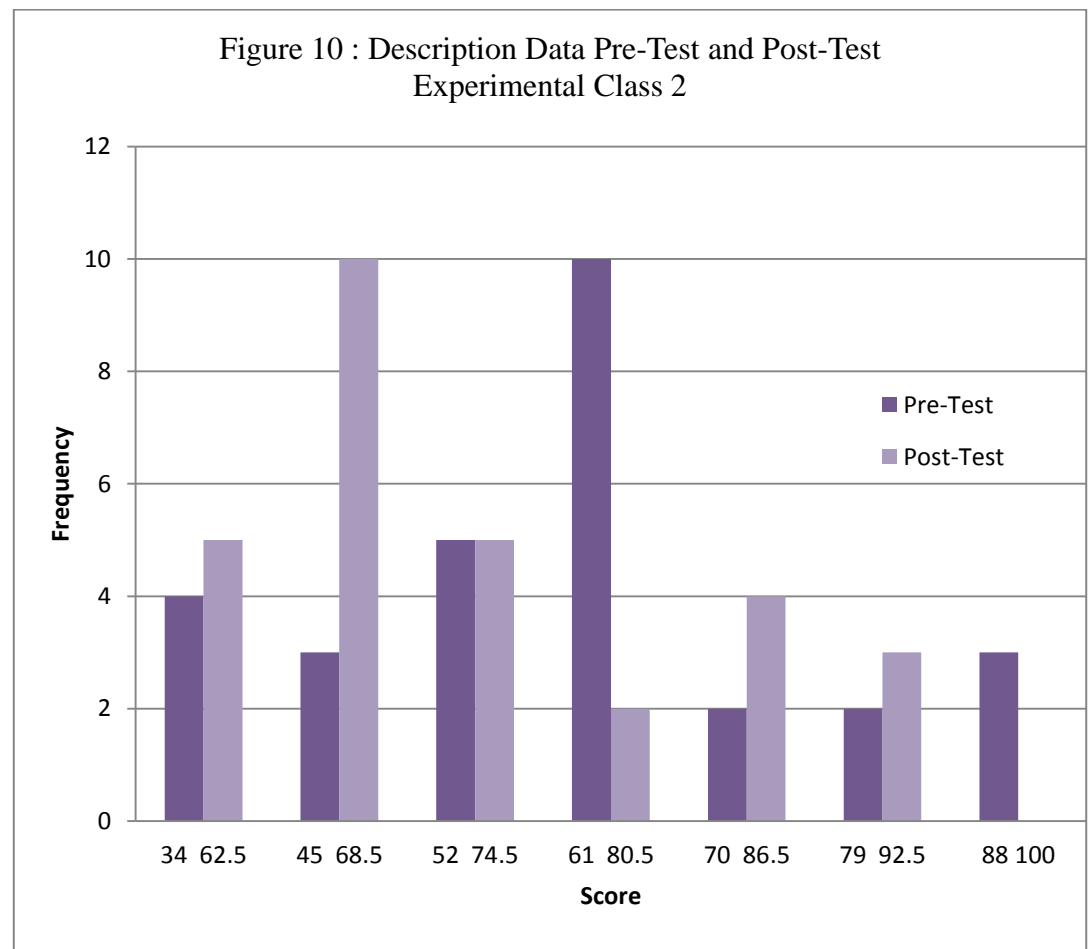
From the histogram above, the students' scores of experimental class 2 in post-test was higher than pos test.

c. **The Comparison Data after Using Reciprocal Teaching Strategy and Question Answer Relationship Strategy**

Table 18
The Comparison Data after Using RTS and QARS

Description	RTS	QARS
Total	2150	2170
Highest score	95	95
Lowest score	60	60
Mean	75.34	73.78
Median	74.5	71.7
Modus	75	68.2
Range	35	35
Interval	6	6
Standard deviation	7.26	11.31
Variants	55.48	88.36

Based on the above table the total score after RTS was 2150; QAR was 2170, the highest score of both RTS and QAR was 95, the lowest score of both RTS and QAR was 60, the mean score of RTS was 75.35; QAR was 73.78, the median of RTS was 74.5; QAR was 71.7, the modus of RTS was 75; QAR was 62.8, the range of both RTS and QAR was 53, the interval of both RTS and QAR was 6, the standard deviation of RTS was 7.26; QAR was 11.31 and the variants of TRS was 55.48; QAR was 88.36. Those were the comparison data after using RTS and QAR. From the mean score could be known that both experimental class were in good level base the description on table 18.

B. Technique of Data Analysis

   1. Requirement Test

     a. Normality and Homogeneity Pre-Test

       1) Normality of Experimental Class 1 and 2 in Pre-Test

Table 19
Normality and Homogeneity in Pre-Test

Class	Normality Test		Homogeneity Test	
	x_{count}	x_{table}	f_{count}	f_{table}
Experiment Class 1	-2.11	11.070		
Experimental Class 2	-6.04	11.070	1.71 < 1.87	

Based on the above table researcher calculation, the score of experimental class 1 Lo = -2.11 < Lt = 11.070 with n = 29 and experimental class 2 Lo = -6.04 < Lt = 11.070 with n = 29, and real level α 0.05. Cause Lo < Lt in the both class. So, H$_a$ was accepted. It means that experimental class 1 and experimental class 2 were distributed normal. It can be seen in appendix 19.

       2) Homogeneity of Experimental Class 1 and 2 in Pre-Test

The coefficient of F_{count} = 1.71 was compared with F_{table}. Where F_{table} was determined at real α 0.05, and the different numerator dk = n-1 = 29-1 = 28 and denominator dk n-1 = 29–1 = 28. So, by using the list of critical value at F distribution is got $F_{0.05}$ = 1.87. It

showed that F_{count} 1.71 < F_{table} 1.87. So, the researcher concluded that the variant from the data of the Students' Reading comprehension at MAN SIPIROK by experimental class 1 and 2 was homogenous. The calculation can be seen on the appendix 17.

b. Normality and Homogeneity Post-Test

1) Normality of Experimental Class 1 and 2 in Post-Test

Table 20
Normality and Homogeneity in Post-Test

Class	Normality Test		Homogeneity Test	
	x_{count}	x_{table}	f_{count}	f_{table}
Experimental Class 1	3.35	11.070	1.59 < 1.87	
Experimental Class 2	5.42	11.070		

Based on the table above researcher calculation, the score of experiment class Lo = 3.35 < Lt = 11.070 with n = 29 and experimental class 2 Lo = 5.42 < Lt = 11.070 with n = 29, and real level α 0.05. Cause Lo < Lt in the both class. So, H_a was accepted. It means that experimental class 1 class and experimental class 2 were distributed normal. It can be seen in appendix 20.

2) Homogeneity of Experimental Class 1 and 2 in Post-test

The coefficient of F_{count} = 1.59 was compared with F_{table}. Where F_{table} was determined at real α 0.05, and the different numerator

dk = n-1 = 29-1 = 28 and denominator dk n-1 = 29-1 = 28. So, by using the list of critical value at F distribution is got $F_{0.05}$ = 1.87. It showed that F_{count} 1.59 < F_{table} 1.85. So, the researcher concluded that the variant from the data of the Students' Reading comprehension at MAN SIPIROK by experimental class 1 and experimental class 2 was homogenous. The calculation can be seen on the appendix 18.

2. **Hypothesis Test**

After calculating the data of post-test, researcher found that post-test result of experimental class 1 and experimental class 2 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 "There was the different effect of Reciprocal Teaching Strategy (RTS) and Question Answer Relationship (QAR) Strategy on Students' Reading Comprehension at Grade XI Students of MAN Sipirok". The calculation can be seen on the appendix 22.

Table 21

Result of T-test from the Both Averages

Pre-test		Post-test	
t_{count}	t_{table}	t_{count}	t_{table}
0.003	1.67252	2.053	1.67252

$H_a : \mu_1 \neq \mu_2$

Where:

$H_a : \mu_1 \neq \mu_2$ " There was the different effect of Reciprocal Teaching Strategy (RTS) and Question Answer Relationship (QAR) Strategy on Students' Reading Comprehension at Grade XI Students of MAN Sipirok".

Based on researcher calculation, researcher found that t_{count} 2.053 while t_{table} 1.67252 with opportunity $(1 - \alpha) = 1 - 5\% = 95\%$ and dk = $n_1 + n_2 - 2 = 29 + 29 - 2 = 56$. Cause $t_{count} > t_{table}$ (7.926 > 1.671), it means that hypothesis H_a was accepted and H_0 was rejected. So, there was the different effect of Reciprocal Teaching Strategy and Question Answer Relationship Strategy on Students' Reading comprehension. In this case, the mean score of experimental class 1 by using Reciprocal Teaching Strategy was 75.34 and mean score of experimental class 2 was 73.78 by using Question Answer Relationship Strategy. The calculation can be seen on the appendix 20.

C. Discussion

Based on the result of this research, the researcher has proved what had been stated by Anna Uhl Chamot, et. al.,[2] and Janette K. Klingner, et. al.,[3] where Reciprocal Teaching Strategy (RTS) is a reading strategy that able to improve reading comprehension. Both theories stated that RTS is an appropriate strategy for reading comprehension, and in this research, the researcher found that the mean score of students' reading comprehension before using RTS was 63.5 and after using RTS was 75.34. It meant there was the effect of RTS on reading comprehension.

So do QAR Strategy, the researcher has proved what had been stated by Donna E. Alverman, et. al.,[4] and Robert T. Tierney and John E. Readence[5], where Question Answer Relationship (QAR) Strategy is a procedure for enhancing students' ability to answer comprehension question and assist the readers in connecting the reading purpose to the text. In this research, before using QAR Strategy, the researcher found that the students' means score was 64.48, and after using QAR Strategy was 73.78. It meant there was the effect of QAR Strategy on reading comprehension, it support and prove their theory.

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[2]Anna Uhl Chamot, et. al., *The Learning Strategies Handbook* (Addison Wesley Longman: Longman, 1999), p. 106.

[3]Janette K. Klingner, et. al., *Teaching Reading Comprehension to Students with Learning Difficulties* (USA: The Guilford Pres, 2007), p.131., *e-book* taken from *https://goo.gl/hD98K*

[4]Donna E. Alverman, et. al., *Theoretical Models and Processes of Reading* (USA: International Reading Association (IRA), 2013), p. 1043-1044., *e-book* taken from *https://goo.gl/h4GrYZ.*

[5]Robert T. Tierney and John E. Readence, *Reading Strategies and Practice: A Compendium* (USA: Pearson Education, Inc, 2005), p. 274.

The result above supported the previous research by some researchers. First, Pausiah on her thesis got the mean score of pre-test of the experimental class was 73.65.[6] Next, Ismaidah on her thesis found the mean score of pre-test of the experimental class was 62.48.[7] Then, Hosseini Faard & Rimani Nikou on their journal got the mean score of pre-test of the experimental class was 57.8.[8] So, pre-test result by using different strategies are various; reciprocal teaching strategy: 73.65 > collaborative strategy: 62.48 > question answer relationship strategy: 57.8.

Meanwhile, the researcher got the mean score of pre-test of the experimental class 1 was 63.5 and experimental class 2 was 63.48. Both of experimental classes result' were lower than Pausiah's result and higher than Ismaidah and Hosseini Faard & Rimani Nikou result. From the above description, it can be seen that the highest mean score of pre-test of the experimental group was gotten by the Pausiah where the mean score of pre-test was 73.65 and the lowest mean score of pre-test of the experimental group was gotten by Hosseini Faard & Rimani Nikou on their journal where the mean score of pre-test was 57.8. The comparison pre-test score to what the researcher got is:

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[6]Pausiah "The Effect of Reciprocal Teaching Strategy to Students' Reading Comprehension at Grade VII SMP Negeri 5 Padangsidimpuan", *Unpublished Thesis,* (Padangsidimpuan: IAIN Padangsidimpuan, 2014).

[7]Ismaidah, "The Effect of Collaborative Strategy on Students' Reading Comprehension at Grade X SMAN 3 Panyabungan", *Unpublish Thesis,* (Padangsidimpuan: IAIN Padangsidimpuan, 2016).

[8]Hosseini Faard & Rimani Nikou, "The Effect of Question-Answer Relationship (QAR) Strategy on First Grade High School EFL Students' Reading Comprehension", *International Journal of Language Learning and Applied Linguistct Word (IJLLALW),* Vol.7 (2), October 2014), p. 300-312, retrieved from *https://goo.gl/rAXPAG,* on Friday, October 20th, 2017.

reciprocal teaching by the previous researcher :73.65 > reciprocal teaching by researcher: 63.5 > question answer relationship strategy by the researcher: 63.48 > collaborative strategy: 62.48 > question answer relationship strategy by the previous researcher: 57.8.

Then, for the post-test result, Ismaidah by applying collaborative strategy got the experimental class' score was 86.52, Pausiah by applying reciprocal teaching got the experimental class' score was 74.96 and Hosseini Faard & Rimani Nikou by applying question answer relationship strategy got the experimental class' score was 72.5, it means the comparison result from the higher to the lower of previous study is collaborative strategy : 86.52 > reciprocal teachin strategy : 74.96 > question answer relationship : 72.5. Besides, the researcher got the mean score for experimental class 1 after using reciprocal teaching strategy was 75.34 and the experimental class 2 after using question answer relationship was 73.78. So, the result for post-test score that gotten by researcher and the related finding are collaborative strategy: 86.52 > reciprocal teaching strategy by the researcher : 75.35 > reciprocal teaching strategy by the previous researcher : 74.78 > question answer relationship strategy by the researcher : 73.78 > question answer relationship strategy by the previous researcher : 72.5.

From the above explanation, there was the increasing from the pre-test score to post-test score after using the strategies among the related findings. Hosseini Faard & Rimani Nikou got the increasing 14.7, and Pausiah got the

increasing 1.31, and Ismaidah got the increasing 24.04. Meanwhile the researcher got the increasing for experimental class 1 was 11.84 and the increasing for experimental class 2 was 10.3.

From the description, it can be seen that the highest mean score of post-test of the experimental class was gotten by Ismaidah by applying collaborative strategy : 86.52 and the lowest mean score of post-test was gotten by Hosseini Faard & Rimani Nikou by applying question answer relationship in their journal : 72.5. So, among the mean scores of post-test, the mean scores have increased than pre-test.

Based on the result, the researcher has got the effect of using the strategy on students' reading comprehension. Hosseini Faard & Rimani Nikou in using question answer relationship found that t_0 is higher than t_t (3.277 > 1.703), Pausiah in using reciprocal teaching strategy found that t_0 is higher than t_t (2.18 > 1.67), and Ismaidah in using collaborative strategy found that t_0 was 4.22 and t_t was 1.67 (t_0 is higher than t_t, 4.22 > 1.67). Besides, the researcher also found that t_0 is higher than t_t where t_0 was 2.053 and t_t was 1.6725 (t_0 was higher than t_t). So, it can be concluded that there was a effect of reciprocal teahing strategy and question answer relationship strategy on students reading comprehension at grade XI students' of MAN Sipirok.

From the result of the research that is previously stated, it was proved that the students of the experimental class 1 who were taught reading comprehension by using reciprocal teahing strategy got better result: 75.35 than the experimental

class 2 that were taught reading comprehension by using question answer relationship strategy: 74.78. It means there was different effect of RTS and QARS on students' reading comprehension.

D. Threats of the Research

The researcher found the threats of the research as follows:

1. The students were not serious in answering the pre-test and post-test. Some of them still were cheating. It made the answer of the test was not pure because they did not do it by themselves.

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

3. The students were too enthusiastic in discussing the text. It made them be not followed the rule of treatment when the teacher gives other text, the students feel confused to understand the whole text.

CHAPTER V

CONCLUSION AND SUGGESTION

A. Conclusion

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

1. Before using Reciprocal Teaching Strategy and Question Answer Relationship, students' reading comprehension was unsatisfied. It can be seen by the highest score of experimental class 1 in pre test was 85 only and the lowest score was 30. Meanwhile the highest score of experimental class 2 was 85 and the lowest score was 30. Besides, the mean score of the experimental class 1 was 1 63.5 and the experimental class 2 was 63.48, it was on the enough level.

2. After using Reciprocal Teaching Strategy and Question Answer Relationship, researcher got the highest score of experimental class 1 and 2 became 95 and the lowest score 60 and the mean score of the experimental 1 class was higher than experimental class 2 (75.34 > 73.38). It means that there was different effect of Reciprocal Teaching Strategy and Question Answer Relationship on students' reading comprehension, Reciprocal Teaching Strategy was higher than Question Answer Relationship Strategy and mean score of both experimental class were in the good level.

3. Based on the calculation of t_{test}, $t_{count} = 7.834$ was higher than $t_{table} = 1.67252$ and the mean score of experimental class 1 in post-test was 75.34, meanwhile the mean score of experimental class 2 in post-test was 73.78,

experimental class 1 was higher than experimental class 2 (75.34 > 73.78). It can be concluded that there was the different effect of Reciprocal Teaching Strategy and Question Answer Relationship on Students' reading comprehension at Grade XI of MAN Sipirok where H_a was accepted.

B. Suggestion

Based on the above conclusion, the researcher has some suggestions as follow:

1. It is suggested to the English teacher of MAN Sipirok to apply the innovative strategy such as reciprocal teaching and question answer realationship strategy in teaching reading.

2. For headmaster, provide tools and media for teaching reading. It can make the teacher easier to teach, so do students, they will be more interested to learn by using the appropriate media and tools.

3. Other researcher can develop further study in the area of RTS and QAR Strategies in order to improve students' reading comprehension.

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CURRICULUM VITAE

A. Identity

Name : Dewi Sartini
NIM : 14 203 00027
Place and Birthday : Pagaran Batu, October 24th, 1995
Gender : Female
Religion : Islam
Address : Ling. Pagaran Batu, Kelurahan Parausorat, Sipirok

B. Parent

1. Father's name : Sahnan Siregar

2. Mother's name : Esmina Pasaribu

C. Educational Background

1. Elementary School : SD N Muara Siregar-Sipirok (2007)

2. Junior High School : MTs N Sialagundi-Sipirok (2010)

3. Senior High School : SMK N 1 Sipirok (2014)

4. College : IAIN Padangsidimpuan (2018)

Appendix 1

Experimental Class 1

<div align="center">

Rencana Pelaksanaan Pembelajaran

(RPP)

</div>

Nama Sekolah   : MAN SIPIROK

Mata Pelajaran   : Bahasa Inggris

Kelas/Semester   : XI MIA 2/ II (Genap)

Alokasi Waktu   : 4× 40 Menit (2×Pertemuan)

Standar Kompetensi : Memahami makna dalam esai pendek sederhana berbentuk factual/ information report teks untuk berinteraksi dengan lingkungan sekitar.

Kompetensi Dasar : Menangkap makna dalam teks ilmiah faktual (*factual/ information report*), lisan dan tulis, sederhana, tentang orang, binatang, benda, gejala dan peristiwa alam dan sosial, terkait dengan mata pelajaran lain di kelas XI.

Jenis Teks   : Factual/ Information Report Text

Aspek Skill   : Membaca

1. **Indicator** :

- Mengidentifikasi gagasan utama dalam teks *factual/ information report*
- Memahami informasi rinci dalam teks *factual/ information report*
- Memahami informasi tertentu dalam teks *factual/ information report*
- Memahami makna kalimat atau kata dalam tesk *factual/ information report*

2. **Tujuan Pembelajaran:**

   Pada akhir pembelajaran siswa diharapkan:

- Siswa mampu mengidentifikasi gagasan utama dalam teks *factual/ information report*
- Siswa mampu memahami informasi rinci dalam teks *factual/ information report*
- Siswa mampu memahami informasi tertentu dalam teks *factual/ information report*
- Memahami makna kalimat atau kata dalam tesk *factual/ information report*.

3. **Materi Pelajaran:**

- Teks monolog berbentuk *factual/ information report*

4. **Stategi Pembelajaran:**

- Reciprocal Teaching Strategy

5. **Langkah – Langkah Kegiatan**

   A. Pendahuluan

   Apersepsi:

   - Tanya jawab mengenai teks tulis fungsional dan essai pendek sederhana berbentuk factual/ information report yang berkaitan dengan orang, binatang, benda, gejala dan peristiwa alam dan sosial, terkait dengan mata pelajaran lain di Kelas XI.

   Motivasi:

   - Menjelaskan pentingnya materi yang akan dipelajari berikut kompetensi yang harus di kuasai siswa.

B. Kegiatan Inti

Dalam kegiatan inti, Guru:

1. Mengarahkan pembelajaran siswa dengan memperagakan, membimbing dan mengaplikasikan strategi-strategi membaca. Bacalah sebagian teks dengan nyaring dan peragakan keempat strategi membaca, yaitu bagaimana cara merangkum, mengklarifikasi, bertanya dan memprediksi ([1]memprediksi bebas sesuai dengan materi).

2. Dalam satu kelompok yang terdiri dari empat siswa, alokasikan peran masing-masing, yaitu: perangkum, pengklarifikasi, penanya dan pemprediksi.

3. Arahkan siswa membaca beberapa paragraph dari teks terpilih. Sarankan siswa untuk membuat catatan saat membaca, seperti menggarisbawahi, membuat kode dan lain-lain.

4. a. Pemprediksi membantu kelompoknya menghubungkan bacaan sebelumnya dengan meninjau prediksi dari bacaan sebelumnya dan membantu memprediksi apa yang akan mereka baca dengan menggunakan kata kunci dan kesimpulan dalam teks

   b. Penanya membantu kelompoknya bertanya dan menjawab pertanyaan tentang teks dan mengingatkan kelompoknya menggunakan berbagai jenis pertanyaan (higher and lower order).

   c. Perangkum mengemukakan kembali ide utama dan membantu kelompoknya mengemukakan ide utama atau ide dengan bahasa mereka sendiri.

   d. Pengklarifikasi membantu kelompoknya mencari tahu bagian yang teks yang kurang jelas dan mencari solusi dari masalah tersebut.

---

[1] Lanjutkan membimbing siswa menggunakan keempat strategi hingga mereka mampu menggunakan strategi tersebut secara mandiri.

5. Peran dalam kelompok bergiliran dan membaca teks berikutnya. Siswa mengulangi proses membaca dalam peran baru masing-masing. Ulangi proses tersebut sampai teks/topik habis.

C. Penutup

Dalam kegiatan penutup, Guru:

- Guru bersama siswa menyimpulkan tentang materi yang dipelajari dan mencatat informasi yang penting.
- Memberikan penilaian berupa latihan-latihan untuk mengetahui sejauh mana kemampuan siswa.

6. Alat/SumberBelajar :

- Buku yang relevan, Dictionary, Papan tulis, Spidol dan Penghapus

7. Penilaian:

Indicator Pencapaian Kompetensi	Teknik Penilaian	Bentuk Instru-ment	Instrument Soal
1. Mengidentifikasi gagasan utama dalam teks *factual/ information report* 2. Memahami informasi rinci dalam teks *factual/ information report* 3. Memahami informasi tertentu dalam teks *factual/ information report* 4. Memahami makna kalimat atau kata dalam tesk *factual/ information report*	Tes Tulisan	Pilihan Ganda	Read the text carefully and then choose the correct answer based on the text by crossing a, b, c, or d!

a. Pedoman penilaian

- Jumlah skor maksimal keseluruhan adalah 100.
- Setiap jawaban yang benar di beriskor 5. Jumlah skor keseluruhan 5×20=100. (Tes Tertulis)

b. Instrument: Answer the question based on the text!

c. Rubrik penilaian

Uraian	Skor
Jawaban Benar	5
Jawaban Salah	0

Padangsidimpuan,   2017

Mengetahui

Validator   Researcher

Sojuangon Rambe, S.S., M.Pd   **Dewi Sartini**

NIP. 19790815 200604 1 003   NIM. 14 203 00027

Experiment Class 1 (Reciprocal Teaching Strategy)

Learning Material

Repot Text

   Text 1

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.

   Text 2

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 has sand but it has green moss. At night the moss sparkles like stars. Tall stars called Fruji grow everywhere. The Fruji tress 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 tress.

There is no television on Wingo Island. So is the telephone and computer. It is 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.

Appendix 2

Experimental Class 2

<div align="center">

Rencana Pelaksanaan Pembelajaran

(RPP)

</div>

Nama Sekolah   : MAN SIPIROK

Mata Pelajaran   : Bahasa Inggris

Kelas/Semester   : XI MIA 3/ II (Genap)

Alokasi Waktu   : 4× 40 Menit (2×Pertemuan)

Standar Kompetensi : Memahami makna dalam esai pendek sederhana berbentuk factual/ information report teks untuk berinteraksi dengan lingkungan sekitar.

Kompetensi Dasar   : Menangkap makna dalam teks ilmiah faktual (*factual / information report*), lisan dan tulis, sederhana, tentang orang, binatang, benda, gejala dan peristiwa alam dan sosial, terkait dengan mata pelajaran lain di kelas XI.

Jenis Teks   : Factual/ Information Report Text

Aspek Skill   : Membaca

8. **Indicator** :

- Mengidentifikasi gagasan utama dalam teks *factual/ information report*
- Memahami informasi rinci dalam teks *factual/ information report*
- Memahami informasi tertentu dalam teks *factual/ information report*
- Memahami makna kalimat atau kata dalam tesk *factual/information report*.

9. **Tujuan Pembelajaran:**

Pada akhir pembelajaran siswa diharapkan:

- Siswa mampu mengidentifikasi gagasan utama dalam teks *factual/information report*
- Siswa mampu memahami informasi rinci dalam teks *factual/information report*
- Siswa mampu memahami informasi tertentu dalam teks *factual/information report*
- Memahami makna kalimat atau kata dalam tesk *factual/information report*.

10. **Materi Pelajaran:**

- Teks monolog berbentuk *factual/ information report*

11. **Strategi Pembelajaran:**

- Question Answer Relationship Strategy

12. **Langkah – Langkah Kegiatan**

D. **Pendahuluan**

Apersepsi:

- Tanya jawab mengenai teks tulis fungsional dan essai pendek sederhana berbentuk factual/ information report yang berkaitan dengan orang, binatang, benda, gejala dan peristiwa alam dan sosial, terkait dengan mata pelajaran lain di Kelas XI.

Motivasi:

- Menjelaskan pentingnya materi yang akan dipelajari berikut kompetensi yang harus di kuasai siswa.

E. Kegiatan Inti

Dalam kegiatan inti, Guru:

6. Memperkenalkan strategi dengan menunjukkan hubungan antara pertanyaan dan jawaban. Memperluas penerapannya bisa diterapkan di dalam kelas dimana siswa bisa menerapkannya.

7. Membuat pertanyaan terkait QAR dari bagian teks singkat (tidak lebih dari lima kalimat) untuk keempat level. Menggunakan pertanyaan-pertanyaan berikut, dan tunjukkan bagaimana setiap level pertanyaan terkait bisa diidentifikasikan dan dijawab. Bahas perbedaan antara pemakaian pertanyaan dalam buku bacaan dan kertas latihan.

   a. Right There: jawabannya terdapat dalan teks, biasanya frasa dalam satu kalimat.

   b. Think and Search: jawaban ada dalam teks, siswa diharuskan menghubungkan bagian teks yang terpisah untuk menjawab pertanyaan.

   c. Author and You: jawaban tidak langsung terdapat dalam teks, siswa menggambarkannya dalam pengetahuan mereka seperti apa yang dituliskan pengarang untuk menjawab pertanyaan .

   d. On Your Own: mewajibkan siswa memikirkan apa yang mereka ketahui melalui pemahaman membaca dan pengalaman mereka (prior knowledge) untuk menjawab pertanyaan.

8. Memberikan beberapa contoh pertanyaan dan bagaimana mengidentifikasi jawaban berdasarkan level QAR yang digunakan.

9. Biarkan siswa belajar mandiri untuk menjawab pertanyaan teks yang lebih panjang. Tugaskan siswa untuk menguji berbagai pertanyaan tersebut dalam buku bacaan mereka.

F. Penutup

Dalam kegiatan penutup, Guru:

- Guru bersama siswa menyimpulkan tentang materi yang dipelajari dan mencatat informasi yang penting.
- Memberikan penilaian berupa latihan-latihan untuk mengetahui sejauh mana kemampuan siswa.

13. Alat/Sumber Belajar:

- Buku yang relevan, Dictionary, Papan tulis, Spidol dan Penghapus

14. Penilaian:

Indicator Pencapaian Kompetensi	Teknik Penilaian	Bentuk Instrument	Instrument Soal
5. Mengidentifikasi gagasan utama dalam teks *factual/ information report* 6. Memahami informasi rinci dalam teks *factual/ information report* 7. Memahami informasi tertentu dalam teks *factual/ information report* 8. Memahami makna kalimat atau kata dalam tesk *factual/ information report*yang penting dalam teks *factual/ information report*	Tes tulisan	Pilihan Ganda	Read the text carefully and then choose the correct answer based on the text by crossing a, b, c, or d!

d. Pedoman penilaian

- Jumlah skor maksimal keseluruhan adalah 100.
- Setiap jawaban yang benar di beriskor 5. Jumlah skor keseluruhan 5×20=100.(Tes Tertulis)

e. Instrument: Answer the question based on the text!

f. Rubrik penilaian

Uraian	Skor
Jawaban Benar	5
Jawaban Salah	0

Padangsidimpuan,   2017

Mengetahui

Validator   Researcher

Sojuangon Rambe, S.S., M.Pd   **Dewi Sartini**

NIP. 19790815 200604 1 003   NIM. 14 203 00027

Sojuangon Rambe, S.S., M.Pd

Experiment Class 2 (Question Answer Relationship Strategy)

Learning Material

Repot Text
 Model of Question No.1-5 for Text 1 (Kangaroo)

1. Kangaroo's smaller relative called…. **(Right There)**

2. What are the largest kangaroos? **(Right There)**

3. What are the singularities of Kangaroo? **(Think and Search)**

4. If you live in Australia and you find a small kangaroo, what will you do to take care of it? **(Author and You)**

5. When you see a kangaroo and another animal who eats grass and plants in the same corral, will you separate them? Why? **(On Your Own)**

 Text 1
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.

 Text 2
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 tress 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 tress.

There is no television on Wingo Island. So is the telephone and computer. It is 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.

Question No.6-10 (Wingo Island)

6. What is the meaning of statement follow?

   "It is really a place to dream." **(Think and Search)**
7. Where do the people of the island live in? **(Right There)**

8. The main idea of the fourth paragraph is…. **(Right There)**

9. The Weather on Wingo Island is very hot but at twelve o'clock, every day, it rains. Sometimes, there are windstorms.

   In general, why the windstorm happens? **(Author and You)**
10. Can you live without any phone, television computer, or internet? Why? **(On Your Own)**

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Sojuangon Rambe, S.S., M.Pd

APPENDIX 3

Instrument for Pre-Test after Validity

Nama :

Kelas :

Instruction: Choose the correct answer by crossing (X) a, b, c, or d!

Read the following text and answer the questions 1 to 6

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.

1. Which one creates Jellyfish's light?
   a. White blood
   c. Chemical reaction
   b. Nervous system
   d. Salt water

2. What is the main idea of the first paragraph?
   a. Jellyfish are really fish
   c. Jellyfish are animals
   b. Jellyfish are not really fish
   d. Jellyfish are vertebrate animals

3. Based on the text, we know that….
   a. Jellyfish belong to invertebrate animals
   b. Jellyfish have heads like other animals

c. Jellyfish's brain helps them find the food

d. Jellyfish cannot live in fresh water

4. Which one is not true?

a. Jellyfish have brain and head

b. Some jellyfish can grow in the darkness

c. There is no jellyfish' head

d. Jellyfish are found in the ocean and seas

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

a. Most jellyfish live in salt water

b. Most jellyfish live in fresh water

c. Most jellyfish live in the river

d. Most jellyfish live in the lake

6. "Some jellyfish can glow in darkness by making their own light." (Paragraph 3). The word "glow" in the sentence means….

a. Move

b. Produce

c. Appear

d. Shine

Read the following text and answer the questions 7 to 12

Giraffe

Giraffe is the highest animal in the world. Its height can reach 4.8 to 5.5 meters and its weight about 1360 pounds. Giraffe has a unique characteristic. They have a very long neck and two small horns on its head. Giraffes have big brown eyes and protected by thick and long eyebrows. Her body is covered with a unique pattern that is attached by brown spots all over their body.

Just like camels, giraffes can survive without drinking for long time because giraffes can rely on the water contained in leaves they eat. Giraffes are very selective in choosing food. They always eat young leaves that grow in the tree tops. Their tongue shaped like a knife help them to cut branches which are very hard.

Female giraffes can start pregnant at the age of five years, with a gestation period of 15 months. Commonly female giraffe bear one baby, but sometimes two babies at once. Giraffes bear its baby with a standing position. When the baby is about to be born, they just drop it to the ground from a 1.5 meter of height. Baby

giraffe can stand with about 20 minutes since being born, and begin breastfeeding within an hour of birth.

7. What is the main idea of the first paragraph?
    a. Giraffe is the shortest animal in the world
    b. Giraffe is the highest animal in the world
    c. Giraffe is not the highest animal in the world
    d. Giraffe has a unique characteristic

8. From the text we know that….
    a. Giraffes have big black eyes
    b. Giraffe never eats young leaves
    c. Giraffes can survive without drinking for long time
    d. Giraffes is same as camels

9. How old the female giraffe can start pregnant?
    a. Three years   c. under five years
    b. at the age of five years   d. at the age of four years

10. The unique characteristic of giraffe is?
    a. Two horns on its head   c. Brown spot
    b. They have long neck   d. Their food

11. The true statement base on text is….
    a. Giraffe bears its baby with a standing position
    b. Female giraffe can start pregnant under the age of five years
    c. Their tongue are sharp like a knife
    d. Giraffe has two small sharp head

12. …. They just drop it to the ground from 1.5 meter of height.
    The word "it" in third paragraph refers to?
    a. Neck   c. Baby giraffe
    b. Horn   d. Food

Read the following text and answer the questions 13 to 16

Dolphin

For many years people believed that the cleverest animals after man were the chimpanzees. Now, however, there is a proof that dolphins may be even cleverer 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.

13. What kind of animal is dolphin?
    a. Insect
    b. fish
    c. Mammal
    d. bird

14. Why talking to dolphin is not easy?
    a. dolphins cannot hear the kind of man's sounds
    b. dolphins cannot think as human
    c. dolphins like playing with man
    d. dolphins feel annoyed by man

15. What is the main idea of the second paragraph?
    a. Dolphins are very friendly toward man
    b. Dolphins have a difficult language
    c. Dolphins have a simple language
    d. Dolphins are able to talk to man

16. What is the characteristic of dolphin according to the text?

    a. fierce

    b. friendly

    c. naughty

    d. shy

Read the following text and answer the questions 17 to 20

Gold

Gold is a precious metal. Gold is used as ornaments or as money.

Gold is found in many places, but in a small supply. It is often found on the surface of the earth. Since gold is a heavy substance, it is sometimes found loose on bottom of rivers. The gold is found together with sand and rocks, and must be separated from them. It is simple to search for this type of gold.

It is not usually necessary to drill for gold, but when a layer of gold is located deep below the surface of the earth, it is possible to drill a hole into the ground. Engineers have developed modern process for removing gold from rocks.

Since gold is not very hard, it is sometimes melted and added to other substances for making rings, coins, and art objects. It will be priced forever because it is beautiful, rare, and useful.

17. The main idea of the second paragraph is....

    a. Gold is found in many places

    b. Gold is found in found on the surface of the earth

    c. Gold is found in found on the river

    d. Gold is a heavy substance

18. The following are associated with gold, except....

    a. useful

    b. precious

    c. beautiful

    d. unnecessary

19. <u>It</u> is sometimes found loose on bottom of rivers.

The word "it" refers to….

a. metal

b. river

c. earth

d. gold

20. "It will be <u>priced</u> forever because…." (Paragraph 4)

The underlined word means….

a. valuable

b. worthless

c. interesting

d. Wonderful

Padangsidimpuan,   -   - 2017
Validator

<u>Sojuangon Rambe, S.S., M.Pd</u>

APPENDIX 4

Instrument for Post-Test after Validity

Nama   :

Kelas   :

Instruction: choose the correct answer by crossing (X) a, b, c, or d!

Read the following text and answer the questions 1 to 5

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. What is the main idea of the first paragraph?

   a. Antibiotic has function to press or stop a process of organism's growth, particularly bacteria

   b. Antibiotic is kind of compounds both natural and synthetic

   c. Antibiotic is used to treat bacterial infections

   d. Antibiotic is used as a tool for genetic engineering in biotechnology

2. Which one is not true?

   a. Antibiotic is used to treat bacterial infections

   b. Antibiotic is not same with disinfectant

   c. Antibiotic is effective in handling infection caused by viruses

   d. Antibiotic kills instantly without injuring its sufferers

3. In terms of treatment, antibiotics <u>dubbed</u> as "magic bullet "…. (Paragraph 2)
   The underline word close in meaning to….

   a. work   c. say

   b. seen   d. call

4. Based on how to use, antibiotics are divided into two, they are….

   a. antibiotics that target gram- negative or gram- positive bacteria and wider spectrum

   b. oral antibiotics and antibiotic intradermal

   c. antibiotics that target gram- negative and gram- positive

   d. oral antibiotics and gram- positive bacteria antibiotics

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

   a. Antibiotic is a compound

   b. Antibiotic kills instantly without injuring its suffers

   c. Antibiotic is good for medication

   d. Antibiotic is not good for fungi

Read the following text and answer the questions 6 to 12

Octopus

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 enemies by doing this.

6. Which group of sea creatures belongs to the same family with octopus?
   a. turtle and squid
   b. shrimp and crab
   c. crab and cuttlefish
   d. cuttlefish and squid

7. How much a fully-grown octopus can weigh?
   a. 25 kilograms
   b. 35 kilograms
   c. 45 kilograms
   d. 55 kilograms

8. The main idea of the first paragraph is….
   a. The octopus have eight effective feet which it utilizes as hands
   b. "Octopus" originates from two words that have meaning "eight feet"
   c. The octopus have limbs
   d. The octopus have eight tentacles

9. How does the octopus look for food?

    a. It uses magic colors   c. It uses its hand   m

    b. It uses its teeth.   d. It uses its tentacles

10. The word "octopus" mean….

    a. Eight feeth   c. Fish

    b. Dark fish   d. Ghost Sea

11 The word "them" in the thirds paragraph (line 10) refers to the octopus'….

    a. teeth   c. tentacles

    b. enemies   d. utilizes

12 What does the octopus do to run away or escape from its enemy?

    a. stings the enemies

    b. gives out a tick dark fluid to darken the water

    c. swims

    d. runs

Read the following text and answer the questions 13 to 16

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.

13. How tall is a gardenia tree?

a. 3 - 25 cm

c. 5-50 cm

b. 5-12 cm

d. 1-5 m

14. 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.

15. 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

16. "... because it originated in warm ..." (Paragraph 3, line 10)

The underlined word refers to....

a. the flower

c. the soil

b. the species

d. the leaf

Read the following text and answer the questions 17 to 20

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.

17. The spider has special teeth called …..

   a. poison   c. fangs
   b. arachnids   d. quest

18. The true statement according to the text is…..

   a. Spiders are special insects that have three pair of legs
   b. Arachnids have three pairs of legs and two body parts
   c. Spiders are not insects but arachnids that can see quite well
   d. Spiders do not like other small insects as their food

19. The difference between spider and insect are except….

   a. Insects have three pairs of legs   c. Insects' home are like spiders
   b. Spiders have four pairs of legs   d. Insects have three body parts

20. The main idea of the second paragraph is….

   a. Spiders eat small insects
   b. Spiders eat flies and mosquitoes
   c. Spiders bites people
   d. Spiders are not insects

Appendix 5

Key Answer

A. Pre Test	B. Post Test
1. C	1. A
2. B	2. C
3. A	3. D
4. A	4. B
5. A	5. B
6. D	6. D
7. B	7. C
8. C	8. A
9. B	9. D
10. B	10. A
11. A	11. C
12. C	12. B
13. C	13. D
14. A	14. C
15. C	15. B
16. B	16. B
17. A	17. C
18. D	18. C
19. D	19. C
20. A	20. A

Calculation of Pre-Test

1. Mean score from score total (M_t)

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

$$M_t = \frac{523}{25} = 20.92$$

2. Standard Deviation (SD_t)

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

$$SD_t = \sqrt{\frac{11051}{25} - \left(\frac{523}{25}\right)^2}$$

$$SD_t = \sqrt{442.04 - 20.92^2}$$

$$SD_t = \sqrt{442.04 - 437.65}$$

$$SD_t = \sqrt{4.39} = 2$$

3. Mean Score (M_p)

Item 1

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n1}$$

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

$$M_{pl} = \frac{444}{21} = 21.14$$

Item 2

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n2}$$

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

$$M_{pl} = \frac{436}{21} = 20.76$$

Item 3

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n3}$$

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

$$M_{pl} = \frac{384}{18} = 21.33$$

Item 4

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

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

$$M_{pl} = \frac{468}{22} = 21.27$$

Item 5

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

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

$$M_{pl} = \frac{467}{22} = 21.23$$

Item 6

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

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

$$M_{pl} = \frac{467}{22} = 21.23$$

Item 7

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

$$M_{pl} = \frac{22+21+20+23+22+22+22+22+16+22+17+23+23+22+20+22+22+22+21+21+22}{21}$$

$$M_{pl} = \frac{448}{22} = 21.33$$

Item 8

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

$$M_{pl} = \frac{22+20+21+20+23+22+19+22+16+22+23+23+23+22+20+22+22+22+21+21+22}{21}$$

$$M_{pl} = \frac{448}{21} = 21.33$$

Item 9

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

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

$$M_{pl} = \frac{467}{22} = 21.23$$

Item 10

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n10}$$

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

$$M_{pl} = \frac{447}{21} = 21.29$$

Item 11

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

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

$$M_{pl} = \frac{446}{22} = 20.27$$

Item 12

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n12}$$

$$M_{pl} = \frac{22+20+21+20+23+22+22+16+22+23+17+23+23+22+20+22+22+22+21+21+21+22}{22}$$

$$M_{pl} = \frac{467}{22} = 21.23$$

Item 13

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n13}$$

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

$$M_{pl} = \frac{447}{21} = 21.29$$

Item 14

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n14}$$

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

$$M_{pl} = \frac{467}{22} = 21.23$$

Item 15

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n15}$$

$$M_{pl} = \frac{15+20+21+20+23+22+22+22+22+23+23+23+22+20+22+22+22+21+21+21+22}{21}$$

$$M_{pl} = \frac{447}{21} = 21.29$$

Item 16

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n16}$$

$$M_{pl} = \frac{15+20+21+20+23+22+22+22+22+23+23+23+22+20+22+22+22+21+21+21+22}{21}$$

$M_{pl} = \frac{447}{21} = 21.29$

Item 17

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

$M_{pl} = \frac{22+20+21+20+23+22+19+22+16+22+23+23+23+22+20+22+22+22+21+21+22}{21}$

$M_{pl} = \frac{448}{21} = 21.33$

Item 18

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

$M_{pl} = \frac{15+20+21+20+23+22+22+22+22+23+23+23+22+20+22+22+22+21+21+21+22}{21}$

$M_{pl} = \frac{447}{21} = 21.29$

Item 19

$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n19}$

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

$M_{pl} = \frac{438}{21} = 20.86$

Item 20

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

$M_{pl} = \frac{22+22+19+22+22+22+23+23+22+20+22+22+21+21+21+22}{16}$

$M_{pl} = \frac{346}{16} = 21.63$

Item 21

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

$M_{pl} = \frac{15+20+21+20+23+22+22+22+22+23+23+23+22+20+22+22+22+21+21+21+22}{21}$

$M_{pl} = \frac{449}{21} = 21.38$

Item 22

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

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

$$\text{M}_{\text{pl}} = \frac{446}{22} = 20.27$$

Item 23

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

$$\text{M}_{\text{pl}} = \frac{22+21+23+22+19+22+16+22+23+23+23+22+20+22+22+22+21+21+22}{19}$$

$$\text{M}_{\text{pl}} = \frac{404}{19} = 21.26$$

Item 24

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

$$\text{M}_{\text{pl}} = \frac{15+22+20+21+20+23+22+19+22+22+16+22+23+17+23+23+22+22+22+22+21+22}{22}$$

$$\text{M}_{\text{pl}} = \frac{467}{22} = 21.23$$

Item 25

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

$$\text{M}_{\text{pl}} = \frac{22+20+20+23+22+19+22+22+16+22+23+23+23+22+20+22+22+21+21+22}{20}$$

$$\text{M}_{\text{pl}} = \frac{427}{20} = 21.35$$

Appendix 7

Table Validity of Pre-test

No	M_p	M_t	SD_t	P	Q	$r_{pbi=\frac{M_{p-M_t}}{SD_t}\sqrt{\frac{p}{q}}}$	$r_t$on 5% significant	Interpretation
1.	21.14	20.92	2	0.8	0.2	0.25	0.396	invalid
2.	20.76	20.92	2	0.8	0.2	-0.18	0.396	invalid
3.	21.44	20.92	2	0.7	0.3	0.421	0.396	valid
4.	21.27	20.92	2	0.9	0.1	0.529	0.396	valid
5.	21.23	20.92	2	0.9	0.1	0.461	0.396	valid
6.	21.23	20.92	2	0.9	0.1	0.461	0.396	valid
7.	21.33	20.92	2	0.8	0.1	0.476	0.396	valid
8.	21.33	20.92	2	0.8	0.2	0.476	0.396	valid
9.	21.23	20.92	2	0.9	0.1	0.461	0.396	valid
10.	21.29	20.92	2	0.8	0.2	0.421	0.396	valid
11.	20.27	20.92	2	0.9	0.1	-0.971	0.396	invalid
12.	21.23	20.92	2	0.9	0.1	0.461	0.396	valid
13.	21.29	20.92	2	0.8	0.2	0.421	0.396	valid
14.	21.23	20.92	2	0.9	0.1	0.461	0.396	valid
15.	21.29	20.92	2	0.8	0.2	0.421	0.396	valid
16.	21.29	20.92	2	0.8	0.2	0.421	0.396	valid
17.	21.33	20.92	2	0.8	0.2	0.476	0.396	valid
18.	21.29	20.92	2	0.8	0.2	0.421	0.396	valid
19.	20.86	20.92	2	0.8	0.2	-0.07	0.396	invalid
20.	21.63	20.92	2	0.6	0.4	0.47	0.396	valid
21.	21.38	20.92	2	0.8	0.2	0.531	0.396	valid
22.	20.27	20.92	2	0.9	0.1	-0.97	0.396	invalid
23.	21.26	20.92	2	0.8	0.2	0.395	0.396	valid
24.	21.23	20.92	2	0.9	0.1	0.461	0.396	valid
25.	21.35	20.92	2	0.8	0.2	0.430	0.396	valid

Appendix 13

Reliability of 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= 25

$\sum Xt = 523$

$\sum Xt^2 = 11051$

$\sum pq = 3.4$

$$S_t^2 = \sum Xt^2 - \left(\frac{\sum xt}{N}\right)^2$$

$$= 11051 - \left(\frac{523}{25}\right)^2 = 11051 - 20.92^2 = 11051 - 437.65 = 10613.35$$

$$S_t^2 = \frac{\sum Xt2}{N} = \frac{10613.35}{25}$$

$$S_t^2 = 424.53$$

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

$$R_{11} = \left(\frac{25}{25-1}\right)\left(\frac{424.53 - 3.4}{424.53}\right) = \left(\frac{25}{24}\right)\left(\frac{421.13}{424.53}\right)$$

$$= (1.04)(0.99)$$
$$= 1.03 \ (r_{11} > 0.70 = \text{reliable})$$

Calculation of Post-Test

4. Mean score from score total (M_t)

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

$$M_t = \frac{521}{25} = 20.84$$

5. Standard Deviation (SD_t)

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

$$SD_t = \sqrt{\frac{10975}{25} - \left(\frac{521}{25}\right)^2}$$

$$SD_t = \sqrt{439 - 20.84^2}$$

$$SD_t = \sqrt{439 - 434.3}$$

$$SD_t = \sqrt{4.167} = 2$$

6. Mean Score (M_p)

Item 1

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n1}$$

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

$$M_{pl} = \frac{463}{22} = 21.05$$

Item 2

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n2}$$

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

$$M_{pl} = \frac{465}{22} = 21.14$$

Item 3

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n3}$$

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

$$M_{pl} = \frac{364}{17} = 21.41$$

Item 4

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

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

$$M_{pl} = \frac{466}{22} = 21.18$$

Item 5

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

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

$$M_{pl} = \frac{465}{22} = 21.14$$

Item 6

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

$$M_{pl} = \frac{15+22+20+21+20+23+22+19+22+22+23+17+23+23+22+20+22+23+22+21+20+202}{22}$$

$$M_{pl} = \frac{465}{22} = 21.14$$

Item 7

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

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

$$M_{pl} = \frac{404}{19} = 21.26$$

Item 8

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

$$M_{pl} = \frac{+22+20+21+20+23+22+19+22+16+20+23+23+23+22+20+22+23+22+23+21+20+20}{22}$$

$$M_{pl} = \frac{467}{22} = 21.23$$

Item 9

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

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

$$M_{pl} = \frac{457}{22} = 21.23$$

Item 10

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n10}$$

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

$$M_{pl} = \frac{425}{20} = 21.25$$

Item 11

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

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

$$M_{pl} = \frac{434}{21} = 20.67$$

Item 12

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n12}$$

$$M_{pl} = \frac{22+20+21+20+23+22+22+16+20+23+17+23+23+22+20+22+23+22+23+21+20+20}{22}$$

$$M_{pl} = \frac{465}{22} = 21.14$$

Item 13

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n13}$$

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

$$M_{pl} = \frac{465}{21} = 21.14$$

Item 14

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n14}$$

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

$$M_{pl} = \frac{465}{22} = 21.14$$

Item 15

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n15}$$

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

$$M_{pl} = \frac{426}{20} = 21.3$$

Item 16

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n16}$$

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

$$M_{pl} = \frac{464}{21} = 21.09$$

Item 17

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

$$M_{pl} = \frac{22+20+21+20+23+22+19+22+16+20+23+23+23+22+20+22+23+22+23+20+20}{21}$$

$$M_{pl} = \frac{446}{21} = 21.24$$

Item 18

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

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

$$M_{pl} = \frac{466}{22} = 21.29$$

Item 19

$$M_{pl} = \frac{total\ score\ of\ students'score\ that\ true\ item\ answer}{n19}$$

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

$$M_{pl} = \frac{465}{21} = 21.14$$

Item 20

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

$$M_{pl} = \frac{22+22+19+22+22+16+20+23+23+22+20+22+23+23+21+20}{16}$$

$$M_{pl} = \frac{343}{16} = 21.44$$

Item 21

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

$$M_{pl} = \frac{15+20+21+20+23+22+22+22+16+20+23+23+23+22+20+22+23+22+23+20+20}{20}$$

$$M_{pl} = \frac{426}{20} = 21.3$$

Item 22

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

$$\text{M}_{pl} = \frac{22+20+21+23+22+19+22+16+20+23+17+23+23+22+20+22+23+22+23+21+20+20}{22}$$

$$\text{M}_{pl} = \frac{446}{22} = 20.27$$

Item 23

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

$$\text{M}_{pl} = \frac{22+20+21+23+22+19+22+22+16+23+17+23+22+22+23+22+23+20+20}{19}$$

$$\text{M}_{pl} = \frac{404}{19} = 21.26$$

Item 24

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

$$\text{M}_{pl} = \frac{15+22+20+21+20+23+22+19+22+22+16+20+23+17+23+23+22+22+23+22+21+20}{22}$$

$$\text{M}_{pl} = \frac{458}{22} = 20.82$$

Item 25

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

$$\text{M}_{pl} = \frac{22+20+20+23+22+19+22+22+16+23+23+23+22+22+23+22+23+21}{18}$$

$$\text{M}_{pl} = \frac{384}{18} = 21.33$$

Calculation of the formulation $r_{pbi} = \dfrac{M_{p-M_t}}{SD_t} \sqrt{\dfrac{p}{q}}$

Item 1

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

$$r_{pbi} = \frac{21.05-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0.205}{2} \sqrt{9}$$

$$r_{pbi} = 0.103 \times 3 = 0.308$$

Item 2

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

$$r_{pbi} = \frac{21.14-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0.396}{2} \sqrt{9}$$

$$r_{pbi} = 0.148 \times 3 = 0.445$$

Item 3

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

$$r_{pbi} = \frac{21.41-20.84}{2} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{0.572}{2} \sqrt{2.6}$$

$$r_{pbi} = 0.286 \times 1.61 = 0.461$$

Item 4

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

$$r_{pbi} = \frac{21.18-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0.342}{2} \sqrt{9}$$

$$r_{pbi} = 0.171 \times 3 = 0.513$$

Item 5

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

$$r_{pbi} = \frac{21.14-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0.296}{2} \sqrt{9}$$

$$r_{pbi} = 0.148 \times 3 = 0.445$$

Item 6

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

$$r_{pbi} = \frac{21.14-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0.296}{2} \sqrt{9}$$

$$r_{pbi} = 0.148 \times 3 = 0.445$$

Item 7

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

$$r_{pbi} = \frac{21.26-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0.423}{2} \sqrt{9}$$

$$r_{pbi} = 0.212 \times 3 = 0.423$$

Item 8

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

$$r_{pbi} = \frac{21.23-20.84}{2} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{0.387}{2} \sqrt{4}$$

$$r_{pbi} = 0.194 \times 2 = 0.581$$

Item 9

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

$$r_{\text{pbi}} = \frac{20.77-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{\text{pbi}} = \frac{-0.067}{2} \sqrt{9}$$

$r_{\text{pbi}} = $ -0.034 x 3 = -0.101

Item 10

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

$$r_{\text{pbi}} = \frac{21.25-20.84}{2} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{0.41}{2} \sqrt{4}$$

$r_{\text{pbi}} = 0.205$ x 2 = 0.41

Item 11

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

$$r_{\text{pbi}} = \frac{20.67-20.84}{2} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{-0.173}{2} \sqrt{4}$$

$r_{\text{pbi}} = $ -0. 087 x 2 = -0.174

Item 12

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

$$r_{\text{pbi}} = \frac{21.14-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{\text{pbi}} = \frac{0.396}{2} \sqrt{9}$$

$r_{\text{pbi}} = 0.148$ x 3 = 0.445

Item 13

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

$$r_{\text{pbi}} = \frac{21.14-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{\text{pbi}} = \frac{0.396}{2} \sqrt{9}$$

$r_{\text{pbi}} = 0.148$ x 3 = 0.445

Item 14

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

$$r_{\text{pbi}} = \frac{21.14-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{\text{pbi}} = \frac{0.396}{2} \sqrt{9}$$

$r_{\text{pbi}} = 0.148$ x 3 = 0.445

Item 15

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

$$r_{\text{pbi}} = \frac{21.3-20.84}{2} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{0.296}{2} \sqrt{4}$$

$r_{\text{pbi}} = 0.23$ x 2 = 0.46

Item 16

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

$$r_{\text{pbi}} = \frac{21.09-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{\text{pbi}} = \frac{0.251}{2} \sqrt{9}$$

$r_{\text{pbi}} = 0.125$ x 3 = 0.376

Item 17

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

$$r_{\text{pbi}} = \frac{21.24-20.84}{2} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{0.398}{2} \sqrt{5.3}$$

$r_{\text{pbi}} = 0.199$ x 2.3 = 0.457

Item 18

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

$$r_{\text{pbi}} = \frac{21.18-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{\text{pbi}} = \frac{0.342}{2} \sqrt{9}$$

$r_{\text{pbi}} = 0.171$ x 3 = 0.513

Item 19

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

$$r_{\text{pbi}} = \frac{21.14-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{\text{pbi}} = \frac{0.396}{2} \sqrt{9}$$

$r_{\text{pbi}} = 0.148 \text{ x } 3 = 0.445$

Item 20

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

$$r_{\text{pbi}} = \frac{21.44-20.84}{2} \sqrt{\frac{0.6}{0.4}}$$

$$r_{\text{pbi}} = \frac{0.296}{2} \sqrt{1.8}$$

$r_{\text{pbi}} = 0.299 \text{ x } 1.33 = 0.398$

Item 21

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

$$r_{\text{pbi}} = \frac{21.3-20.84}{2} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{0.46}{2} \sqrt{4}$$

$r_{\text{pbi}} = 0.23 \text{ x } 2 = 0.46$

Item 22

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

$$r_{\text{pbi}} = \frac{21.14-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{\text{pbi}} = \frac{0.396}{2} \sqrt{9}$$

$r_{\text{pbi}} = 0.148 \text{ x } 3 = 0.445$

Item 23

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

$$r_{\text{pbi}} = \frac{21.26-20.84}{2} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{0.423}{2} \sqrt{4}$$

$r_{\text{pbi}} = 0.212 \text{ x } 2 = 0.423$

Item 24

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

$$r_{\text{pbi}} = \frac{20.82-20.84}{2} \sqrt{\frac{0.9}{0.1}}$$

$$r_{\text{pbi}} = \frac{-0.02}{2} \sqrt{9}$$

$r_{\text{pbi}} = \text{-0.01 x } 3 = \text{-0.03}$

Item 25

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

$$r_{\text{pbi}} = \frac{21.33-20.84}{2} \sqrt{\frac{0.7}{0.3}}$$

$$r_{\text{pbi}} = \frac{0.493}{2} \sqrt{2.6}$$

$r_{\text{pbi}} = 0.247 \text{ x } 1.33 = 0.398$

Appendix 11

Table Validity of Post-test

No	M_p	M_t	SD_t	p	q	$r_{pbi=\frac{M_p - M_t}{SD_t}\sqrt{\frac{p}{q}}}$	r_t on 5% significant	Interpretation
1.	21.05	20.84	2	0.9	0.1	0.308	0.396	Invalid
2.	21.14	20.84	2	0.9	0.1	0.445	0.396	Valid
3.	21.41	20.84	2	0.7	0.3	0.461	0.396	Valid
4.	21.18	20.84	2	0.9	0.1	0.513	0.396	Valid
5.	21.14	20.84	2	0.9	0.1	0.445	0.396	Valid
6.	21.14	20.84	2	0.9	0.1	0.445	0.396	Valid
7.	21.26	20.84	2	0.8	0.2	0.423	0.396	Valid
8.	21.23	20.84	2	0.9	0.1	0.581	0.396	Valid
9.	21.77	20.84	2	0.9	0.1	-0.101	0.396	Invalid
10.	21.25	20.84	2	0.8	0.2	0.41	0.396	Valid
11.	20.67	20.84	2	0.8	0.2	-0.173	0.396	Invalid
12.	21.14	20.84	2	0.9	0.1	0.445	0.396	Valid
13.	21.14	20.84	2	0.9	0.1	0. 445	0.396	Valid
14.	21.14	20.84	2	0.9	0.1	0. 445	0.396	Valid
15.	21.3	20.84	2	0.8	0.2	0.46	0.396	Valid
16.	20.09	20.84	2	0.9	0.1	0.376	0.396	Invalid
17.	21.24	20.84	2	0.8	0.2	0.457	0.396	Valid
18.	21.18	20.84	2	0.9	0.1	0.513	0.396	Valid
19.	21.14	20.84	2	0.9	0.1	0. 445	0.396	Valid
20.	21.44	20.84	2	0.6	0.4	0.398	0.396	Valid
21.	21.3	20.84	2	0.8	0.2	0.46	0.396	Valid
22.	21.14	20.84	2	0.9	0.1	0. 445	0.396	Valid
23.	21.26	20.84	2	0.8	0.2	0.423	0.396	Valid
24.	20.82	20.84	2	0.9	0.1	-0.03	0.396	Invalid
25.	21.33	20.84	2	0.7	0.3	0.398	0.396	Valid

Appendix 13

Reliability of 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= 25

$\sum Xt = 521$

$\sum Xt^2 = 10975$

$\sum pq = 3.35$

$$S_t^2 = \sum Xt^2 - \left(\frac{\sum xt}{N}\right)^2$$

$$= 10975 - \left(\frac{521}{25}\right)^2 = 11051 - 20.84^2 = 10975 - 434.3 = 10540,69$$

$$S_t^2 = \frac{\sum Xt2}{N} = \frac{10540,69}{25}$$

$$S_t^2 = 421.63$$

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

$$R_{11} = \left(\frac{25}{25-1}\right)\left(\frac{421.63-3.35}{421.63}\right) = \left(\frac{25}{24}\right)\left(\frac{418.28}{421.63}\right)$$

$$= (1.04)(0.99)$$
$$= 1.03 \ (r_{11} > 0.70 = \text{reliable})$$

Appendix 14

Score of Experimental Class 1 and Experimental Class 2
Pre Test

a. **Pre Test Score of Experimental Class 1**

No	The Name of Students (n)	Pre Test
1	Ade Ismaini	60
2	Agung Zulkarnaen Siregar	45
3	Ahmad Gojali Siregar	35
4	Alwi Lufti Siahaan	40
5	Alwi Putra Harahap	50
6	Budi Amrullah	55
7	Dermawan	70
8	Elitha Shofia	80
9	Endra Purnawan Hasibuan	60
10	Fauzi Siregar	55
11	Fitri Hayati Siregar	50
12	Hasmar Husein Harahap	85
13	Lija Harahap	60
14	Luthfi Ansori Hutasuhut	45
15	Mahadi Saputra Hasibuan	50
16	Massri Febbriyan	80
17	Maya Sakinah Siregar	65
18	Nadya Erlina	80
19	Nadya Sri Utami	70
20	Nawati Pohan	70
21	Nelsa Maya Sari	75
22	Nila Junita Harahap	65
23	Putri Anisa Rambe	55
24	Rahayu Agustina Pulungan	55
25	Raja Lundu Pulungan	55
26	Siska Dewi Siregar	65
27	Siti Habsah Siregar	75
28	Taufik Arnanda Saagala	40
29	Yulia Astuti Siregar	50
Total		**1740**

b. Pre Test Score of Experiment Class 2

No	The Name of Students (n)	Pre-Test
1	Asmeria Siregar	70
2	Budi Haryadi	35
3	Dea Ramadhani	65
4	Doni Gunawan Siagian	30
5	Ela Sriwahyuni Siregar	65
6	Fajar Albar Harahap	35
7	Havis Mahmudin Piliang	35
8	Ira Pratiwi Siregar	65
9	Jumadi Azanuddin Siregar	40
10	Laila Khairani Hutasuhut	40
11	Mei Sarah Harahap	80
12	Meli Sartika Pane	55
13	Muhammad Rizki	40
14	Nila Octaviani	65
15	Novita Purnama Sari Siregar	70
16	Nurhaida Harahap	60
17	Nurianna	65
18	Nurti Suriani	60
19	Purnama Sari Harahap	60
20	Rasyid Ridho Siregar	65
21	Renni Hastuty	85
22	Ridwan Siregar	45
23	Rohana Harahap	55
24	Seri Khairawati	55
25	Siti Aisyah Harahap	60
26	Siti Kholizah Batubara	85
27	Sulaeman Siregar	50
28	Wina Natama Siregar	85
29	Winda Sari	80
Total		**1710**

Appendix 15

Score of Experimental Class 1 and Experiment Class 2
Post Test

a. **Score of Experimental Class Post Test (after Using RTS)**

No	The Name of Students (n)	Post Test
1	Ade Ismaini	75
2	Agung Zulkarnaen Siregar	70
3	Ahmad Gojali Siregar	60
4	Alwi Lufti Siahaan	70
5	Alwi Putra Harahap	70
6	Budi Amrullah	75
7	Dermawan	70
8	Elitha Shofia	80
9	Endra Purnawan Hasibuan	75
10	Fauzi Siregar	60
11	Fitri Hayati Siregar	70
12	Hasmar Husein Harahap	95
13	Lija Harahap	70
14	Luthfi Ansori Hutasuhut	65
15	Mahadi Saputra Hasibuan	70
16	Massri Febbriyan	90
17	Maya Sakinah Siregar	75
18	Nadya Erlina	85
19	Nadya Sri Utami	75
20	Nawati Pohan	70
21	Nelsa Maya Sari	75
22	Nila Junita Harahap	70
23	Putri Anisa Rambe	75
24	Rahayu Agustina Pulungan	80
25	Raja Lundu Pulungan	75
26	Siska Dewi Siregar	75
27	Siti Habsah Siregar	80
28	Taufik Arnanda Saagala	75
29	Yulia Astute Siregar	75
	Total	**2150**

b. Post Test Score of Experimental Class 2 (Using QAR Strategy)

No	The Name of Students (n)	Post-Test
1	Asmeria Siregar	80
2	Budi Haryadi	65
3	Dea Ramadhani	75
4	Doni Gunawan Siagian	65
5	Ela Sriwahyuni Siregar	70
6	Fajar Albar Harahap	70
7	Havis Mahmudin Piliang	70
8	Ira Pratiwi Siregar	75
9	Jumadi Azanuddin Siregar	65
10	Laila Khairani Hutasuhut	85
11	Mei Sarah Harahap	85
12	Meli Sartika Pane	70
13	Muhammad Rizki	75
14	Nila Octaviani	75
15	Novita Purnama Sari Siregar	75
16	Nurhaida Harahap	85
17	Nurianna	70
18	Nurti Suriani	70
19	Purnama Sari Harahap	70
20	Rasyid Ridho Siregar	70
21	Renni Hastuty	95
22	Ridwan Siregar	60
23	Rohana Harahap	70
24	Seri Khairawati	70
25	Siti Aisyah Harahap	85
26	Siti Kholizah Batubara	90
27	Sulaeman Siregar	60
28	Wina Natama Siregar	95
29	Winda Sari	80
Total		**2710**

Appendix 16

The Comparison of Pre Test and Post Test

a. **Experimental Class 1**

No	The Name of Students (n)	Pre Test	Post Test
1	Ade Ismaini	60	75
2	Agung Zulkarnaen Siregar	45	70
3	Ahmad Gojali Siregar	30	60
4	Alwi Lufti Siahaan	40	70
5	Alwi Putra Harahap	50	70
6	Budi Amrullah	55	75
7	Dermawan	70	70
8	Elitha Shofia	80	80
9	Endra Purnawan Hasibuan	60	75
10	Fauzi Siregar	55	60
11	Fitri Hayati Siregar	50	70
12	Hasmar Husein Harahap	85	95
13	Lija Harahap	60	70
14	Luthfi Ansori Hutasuhut	45	65
15	Mahadi Saputra Hasibuan	50	70
16	Massri Febbriyan	80	90
17	Maya Sakinah Siregar	65	75
18	Nadya Erlina	80	85
19	Nadya Sri Utami	70	75
20	Nawati Pohan	70	70
21	Nelsa Maya Sari	75	75
22	Nila Junita Harahap	65	70
23	Putri Anisa Rambe	55	75
24	Rahayu Agustina Pulungan	55	80
25	Raja Lundu Pulungan	55	75
26	Siska Dewi Siregar	65	75
27	Siti Habsah Siregar	75	80
28	Taufik Arnanda Saagala	40	75
29	Yulia Astuti Siregar	50	75
	Total	**1735**	**2120**

b. **Experimental Class 2**

No	The Name of Students (n)	Pre-Test	Post-Test
1	Asmeria Siregar	70	80
2	Budi Haryadi	35	65
3	Dea Ramadhani	65	75
4	Doni Gunawan Siagian	30	65
5	Ela Sriwahyuni Siregar	65	70
6	Fajar Albar Harahap	35	70
7	Havis Mahmudin Piliang	35	70
8	Ira Pratiwi Siregar	65	75
9	Jumadi Azanuddin Siregar	40	65
10	Laila Khairani Hutasuhut	40	85
11	Mei Sarah Harahap	80	85
12	Meli Sartika Pane	55	70
13	Muhammad Rizki	40	75
14	Nila Octaviani	65	75
15	Novita Purnama Sari Siregar	70	75
16	Nurhaida Harahap	60	85
17	Nurianna	65	70
18	Nurti Suriani	60	70
19	Purnama Sari Harahap	60	70
20	Rasyid Ridho Siregar	65	70
21	Renni Hastuty	85	95
22	Ridwan Siregar	45	60
23	Rohana Harahap	55	70
24	Seri Khairawati	55	70
25	Siti Aisyah Harahap	60	85
26	Siti Kholizah Batubara	85	90
27	Sulaeman Siregar	50	60
28	Wina Natama Siregar	85	95
29	Winda Sari	80	80
Total		**1710**	**2170**

Appendix 16

HOMOGENEITY TEST (PRE-TEST)

Calculation of parameter to get variant of the first class as experimental class sample 1 and variant of the second class as experimental class sample 2 are used homogeneity test by using formula:

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

Hypotheses:

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

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

A. Variant of the XI MIA 2 class is:

NO	Xi	Xi²
1.	30	900
2.	35	1225
3.	35	1225
4.	35	1225
5.	40	1600
6.	40	1600
7.	45	2025
8.	50	2500
9.	50	2500
10.	55	3025
11.	55	3025
12.	55	3025
13.	60	3600
14.	60	3600
15.	60	3600
16.	60	3600
17.	65	4225
18.	65	4225
19.	65	4225
20.	65	4225
21.	65	4225
22.	65	4225
23.	70	4900

24.	70	4900
25.	80	6400
26.	80	6400
27.	85	7225
28.	85	7225
29.	85	7225
Total	1710	107900

n   = 29

$\sum xi = 1710$

$\sum_{xi} 2 = 107900$

So:

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

$$= \frac{29(107900) - (1710)^2}{29(29-1)}$$

$$= \frac{3129100 - 2924100}{29(28)}$$

$$= \frac{205000}{812}$$

$$= 252,46$$

B. Variant of the XI MIA 3 class is:

NO	Xi	Xi^2
1.	30	900
2.	40	1600
3.	40	1600
4.	45	2025
5.	45	2025
6.	50	2500
7.	50	2500
8.	50	2500
9.	50	2500
10.	55	3025
11.	55	3025
12.	55	3025
13.	55	3025
14.	55	3025
15.	60	3600
16.	60	3600
17.	60	3600

18.	65	4225
19.	65	4225
20.	65	4225
21.	70	4900
22.	70	4900
23.	70	4900
24.	75	5025
25.	75	5025
26.	80	6400
27.	80	6400
28.	80	6400
29.	85	7225
Total	1735	107925

N $\quad= 29$

$\sum xi \quad= 1735$

$\sum_{xi} 2 \quad= 107925$

So:

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

$$= \frac{29\,(107925) - (1735)^2}{29(29-1)}$$

$$= \frac{3129825 - 3010225}{29(28)}$$

$$= \frac{119600}{812}$$

$$= 147{,}3$$

C. Variant of the XI IIS 2 class is:

NO	Xi	Xi^2
1.	30	900
2.	30	900
3.	30	900
4.	40	1600
5.	40	1600
6.	40	1600
7.	40	1600
8.	40	1600
9.	40	1600
10.	45	2025
11.	45	2025
12.	45	2025

13.	45	2025
14.	45	2025
15.	50	2500
16.	50	2500
17.	50	2500
18.	50	2500
19.	50	2500
20.	50	2500
21.	55	3025
22.	55	3025
23.	55	3025
24.	60	3600
25.	60	3600
26.	60	3600
27.	60	3600
28.	65	4225
29.	70	4900
30.	80	6400
Total	1480	76850

N $\quad = 30$

$\sum xi \quad = 1480$

$\sum xi2 = 76850$

So:

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

$$= \frac{30(764850) - (1480)^2}{30(30-1)}$$

$$= \frac{2305500 - 2190400}{30(29)}$$

$$= \frac{115100}{870}$$

$$= 132.3$$

D. The Variant of XI IIS 3 class

NO	Xi	Xi^2
1.	30	900
2.	30	900
3.	35	1225
4.	35	1225
5.	35	1225
6.	40	1600
7.	40	1600
8.	45	2025
9.	45	2025
10.	45	2025
11.	45	2025
12.	50	2500
13.	50	2500
14.	50	2500
15.	50	2500
16.	50	2500
17.	50	2500
18.	50	2500
19.	50	2500
20.	55	3025
21.	55	3025
22.	55	3025
23.	55	3025
24.	55	3025
25.	55	3025
26.	60	3600
27.	60	3600
28.	60	3600
29.	70	4900
30.	85	7225
Total	1490	77850

N $= 30$

$\sum xi = 1490$

$\sum xi2 = 77850$

So:

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

$$= \frac{30(77850) - (1490)^2}{30(30-1)}$$

$$= \frac{2335500 - 2220100}{30(29)}$$

$$= \frac{115400}{870}$$

$$= 132.64$$

The Formula was used to test the hypothesis was:

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

1. XI MIA 2 and XI MIA 3 :

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

So:

$$F = \frac{252{,}46}{147{,}3}$$

$$= 1.71$$

After doing the calculation, researcher found that F_{count} = 1.71. It had been compared to F_{table} with α 5% and dk numerator and deminator were same (n_1 and n_2 = 29; dk = 29-1 = 28). From the distribution list F, researcher found that F_{table} = 1.87, so $F_{count} < F_{table}$ (1.71 < 1.87). It could be concluded that there is no difference variant between the XI MIA 2 class and XI MIA 3 class. It means that the variant is homogenous.

2. XI MIA 2 and XI IIS 2 :

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

So:

$$F = \frac{252{,}46}{132.3} = 1.91$$

After doing the calculation, researcher found that F_{count} = 1.91. It had been compared to F_{table} with α 5% and dk numerator n_1-1 = 29-1 = 28 and deminator $n_2 - 1$ = 30-1 29). From the distribution list F, researcher found that

$F_{table} = 1.87$, so $F_{count} > F_{table}$ (1.91 > 1.87). It could be concluded that there is the difference variant between the XI MIA 2 class and XI IIS 2 class. It means that the variant is not homogenous.

3. XI MIA-2 and XI IIS-3 :

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

So:

$$F = \frac{252{,}46}{132.64}$$

$$= 1.90$$

After doing the calculation, researcher found that $F_{count} = 1.90$. It had been compared to F_{table} with α 5% and dk numerator $n_1-1 = 29-1 = 28$ and deminator $n_2 - 1 = 30-1 = 29$. From the distribution list F, researcher found that $F_{table} = 1.90$, so $F_{count} > F_{table}$ (1.90 > 1.87). It could be concluded that there is the difference variant between the XI MIA 2 class and XI IIS 3 class. It means that the variant is not homogenous.

4. XI MIA 3 dan XI IIS 2

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

So:

$$F = \frac{147{,}3}{132{,}3}$$

$$= 1{,}11$$

After doing the calculation, researcher found that $F_{count} = 1.11$. It had been compared to F_{table} with α 5% and dk numerator $n_1-1 = 29-1 = 28$ and

deminator $n_2 - 1 = 30\text{-}1 = 29$. From the distribution list F, researcher found that

$F_{table} = 1.85$, so $F_{count} < F_{table}$ (1.11 < 1.85). It could be concluded that there is no

difference variant between the XI MIA 3 class and XI IIS 2 class. It means that

the variant is homogenous.

5. XI MIA-3 and XI IIS-3 :

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

So:

$$F = \frac{147.3}{132.6}$$

$$= 1,11$$

After doing the calculation, researcher found that $F_{count} = 1.11$. It had

been compared to F_{table} with α 5% and dk numerator $n_1\text{-}1 = 29\text{-}1 = 28$ and

deminator $n_2 - 1 = 30\text{-}1 = 29$. From the distribution list F, researcher found that

$F_{table} = 1.85$, so $F_{count} < F_{table}$ (1.11 < 1.85). It could be concluded that there is no

difference variant between the XI MIA 3 class and XI IIS 3 class. It means that

the variant is homogenous.

6. XI IIS-2 and XI IIS-3 :

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

So:

$$F = \frac{152,29}{147,38}$$

$$= 1,04$$

After doing the calculation, researcher found that $F_{count} = 1.04$. It had been compared to F_{table} with α 5% and dk numerator and deminator were same (n_1 and $n_2 = 30$; dk $= 30\text{-}1 = 29$). From the distribution list F, researcher found that $F_{table} = 1.85$, so $F_{count} < F_{table}$ (1.04 < 1.85). It could be concluded that there is no difference variant between XI IIS 2 class and XI IIS 3 class. It means that the variant is homogenous.

Appendix 17

HOMOGENEITY TEST (POST-TEST)

Calculation of parameter to get variant of the first class as experimental

class sample 1 and variant of the second class as experimental class sample 2 are used

homogeneity test by using formula:

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

Hypotheses:

H$_0$: $\delta_1^2 = \delta_2^2$

H$_1$: $\delta_1^2 \neq \delta_2^2$

E. Variant of the XI MIA 2 class is:

NO	Xi	Xi^2
30.	60	3600
31.	60	3600
32.	65	4225
33.	65	4225
34.	65	4225
35.	70	4900
36.	70	4900
37.	70	4900
38.	70	4900
39.	70	4900
40.	70	4900
41.	70	4900
42.	70	4900
43.	70	4900
44.	70	4900
45.	75	5625
46.	75	5625
47.	75	5625
48.	75	5625
49.	75	5625
50.	80	6400
51.	80	6400
52.	85	7056

53.	85	7225
54.	85	7225
55.	85	7225
56.	90	8100
57.	95	9025
58.	95	9025
Total	2170	164850

n   = 29

$\sum xi = 2170$

$\sum_{Xi} 2 = 164850$

So:

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

$$= \frac{29(164850) - (2170)^2}{29(29-1)}$$

$$= \frac{4780650 - 4708900}{29(28)}$$

$$= \frac{71750}{812}$$

$$= 88.3621$$

F. Variant of the XI MIA 3 class is:

NO	Xi	Xi²
30.	60	3600
31.	60	3600
32.	65	4225
33.	70	4900
34.	70	4900
35.	70	4900
36.	70	4900
37.	70	4900
38.	70	4900
39.	70	4900
40.	70	4900
41.	70	4900
42.	75	5625
43.	75	5625
44.	75	5625
45.	75	5625
46.	75	5625

47.	75	5625
48.	75	5625
49.	75.	5625
50.	75	5625
51.	75	5625
52.	75	5625
53.	80	6400
54.	80	6400
55.	80	6400
56.	85	7225
57.	90	8100
58.	95	9025
Total	2150	160950

$N = 29$

$\sum xi = 2150$

$\sum_{xi} 2 = 160950$

So:

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

$$= \frac{29\,(160950) - (2150)^2}{29(29-1)}$$

$$= \frac{4667550 - 4622500}{29(28)}$$

$$= \frac{45050}{812}$$

$$= 55.480$$

The Formula was used to test the hypothesis was:

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

7. XI MIA 2 and XI MIA 3 :

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

So:

$$F = \frac{88.36}{55.48}$$

$$= 1.59$$

After doing the calculation, researcher found that $F_{count} = 1.59$. It had been compared to F_{table} with α 5% and dk numerator and deminator were same (n_1 and $n_2 = 29$; dk = 29-1 = 28). From the distribution list F, researcher found that $F_{table} = 1.87$, so $F_{count} < F_{table}$ (1.59 < 1.87). It could be concluded that there is no difference variant between the XI MIA 2 class and XI MIA 3 class. It means that the variant is homogenous.

Appendix 18

RESULT OF NORMALITY TEST IN PRE TEST

RESULT OF THE NORMALITY TEST OF XI MIA-2 IN PRE-TEST

1. The score of XI MIA-2 class in pre test from low score to high score:

30	35	35	35	40	40	45	50	50	55
55	55	60	60	60	60	65	65	65	65
65	65	70	70	80	80	85	85	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 (29)

                    = 1 + 3,3 (1.462)

                    = 1 + 4.82

                    = 5.82

                    = 6

4. Length of Classes $= \dfrac{range}{total\ of\ class} = \dfrac{55}{6} = 9.17 = 9$

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
30 – 38	4	34	+3	12	9	36
39 – 47	3	43	+2	6	4	12
48 – 56	5	52	+1	5	1	5
57 – 65	10	**61**	0	0	0	0
66 – 74	2	70	-1	-2	1	4
75 – 83	2	79	-2	-4	4	8
84 – 92	3	88	-3	-9	9	27
$i = 9$	29	-	-	8	-	92

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

$$= 61 + 9 \left(\frac{8}{29}\right)$$

$$= 61 + 9 \ (0.276)$$

$$= 61 + 2.484$$

$$= 63.484$$

$$SD_t = i\sqrt{\frac{\sum fx'^2}{n} - \left(\frac{\sum fx'}{n}\right)^2}$$

$$= 9\sqrt{\frac{92}{29} - \left(\frac{8}{29}\right)^2}$$

$$= 9\sqrt{3.172 - (0.276)^2}$$

$$= 9\sqrt{3.172 - 0.076}$$

$$= 9\sqrt{3.096}$$

$$= 9 \text{ x } 1.76 = 15.84$$

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0\text{-}f_h)}{f_h}$
84 – 92	92.5	1.83	0.4656				
				0.07	2.03	4	0.97
75 – 83	83.5	1.26	0.3962				
				0.14	4.06	3	-0.26
66 – 74	74.5	0.70	0.2549				
				0.20	5.8	5	-0.14
57 – 65	65.5	0.13	0.0517				
				-0.29	-8.41	10	-2.19
48 – 56	56.5	-0.44	0.3300				
				0.17	4.93	2	-0.59
39 – 48	47.5	-1.01	0.1562				
				0.10	2.9	2	-3.10
30 – 38	38.5	-1.58	0.0571				
				0.42	12.18	3	-0.73
	29.5	-2.18	0.0146				
						X^2	-6.04

Based on the table above, the reseracher found that x^2_{count} = -6.04 while x^2_{table} = 11.070, cause $x^2_{count} < x^2_{table}$ (-0.4 < 11.070) with degree of freedom (dk) = 6–1 = 5 and significant level α = 5%. So distribution of XI MIA-2 class (pre-test) is normal.

6. Median

No	Interval	F	Fk
1	30 – 38	4	4
2	39 – 47	3	7
3	48 – 56	5	12
4	**57 – 65**	10	22
5	66 – 74	2	24
6	75 – 83	2	26
7	84 – 92	3	29

Position of Me in the interval of classes is number 4, that:

Bb = 56.5

F = 2

fm = 10

i = 9

n = 29

1/2n = 14.5

So :

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

$= 56.5 + 9 \left(\frac{14.5 - 2}{10} \right)$

$= 56.5 + 9 \ (1.25)$

$= 56.5 + 11.25$

$= 67.75$

7. Modus

No	Interval	F	Fk
1	30 – 38	4	4
2	39 – 47	3	7
3	48 – 56	5	12
4	**57 – 65**	10	22
5	66 – 74	2	24
6	75 – 83	2	26
7	84 – 92	3	29

$M_o = L + \dfrac{d_1}{d_1 + d_2}\, i$

L = 56.5

d_1 = 5

d_2 = 2

i = 9

So,

M_o = 56.5 + $\dfrac{5}{5+2}$ 9

= 56.5 + 0.71 (9)

= 56.5 + 6.39

= 62.89

RESULT OF NORMALITY TEST IN PRE TEST

RESULT OF THE NORMALITY TEST OF XI MIA-3 IN PRE-TEST

1. The score of XI MIA-3 class in pre test from low score to high score:

30	40	40	45	45	50	50	50	50	55
55	55	55	55	60	60	60	65	65	65
70	70	70	75	75	80	80	80	85	

2. High = 85

   Low = 30

Range   = High – Low

           = 85 - 35

           = 55

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

                   = 1 + 3,3 log (29)

                   = 1 + 3,3 (1.462)

                   = 1 + 4.82

                   = 5.82

                   = 6

3. Length of Classes $= \dfrac{range}{total\ of\ class} = \dfrac{55}{6} = 9.17 = 9$

4. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
30 – 38	1	34	+3	3	9	9
39 – 47	4	43	+2	8	4	16
48 – 56	9	52	+1	9	1	9
57 – 65	**6**	**61**	**0**	**0**	**0**	**0**
66 – 74	3	70	-1	-3	1	3
75 – 83	4	79	-2	-8	4	16
84 – 92	1	88	-3	-3	9	9
$i = 9$	29	-	-	8	-	64

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

$$= 61 + 9\left(\frac{8}{29}\right)$$

$$= 61 + 9\,(0.276)$$

$$= 61 + 2.5$$

$$= 63.5$$

$$SD_t = i\sqrt{\frac{\Sigma fx'^2}{n} - \left(\frac{\Sigma fx'}{n}\right)^2}$$

$$= 9\sqrt{\frac{64}{29} - \left(\frac{8}{29}\right)^2}$$

$$= 9\sqrt{2.21 - (0.2)^2}$$

$$= 9\sqrt{2.21 - 0.07}$$

$$= 9\sqrt{2.14}$$

$$= 9 \times 1.46$$

$$= 13.14$$

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\dfrac{(f_0\text{-}f_h)}{f_h}$
84 – 92	92.5	2.20	0.4861				
				0.50	14.5	1	-0.93
75 – 83	83.5	1.52	0.4357				
				0.37	10.75	4	-0.63
66 – 74	74.5	0.84	0.2995				
				0.24	6.96	9	0.29
57 – 65	65.5	0.15	0.0596				
				-0.24	-6.96	6	-1.86
48 – 56	56.5	-0.53	0.2981				
				0.18	5.22	3	-0.42
39 – 48	47.5	-1.22	0.1112				
				0.08	2.32	4	0.72
30 – 38	38.5	-1.90	0.0287				
				0.02	0.58	1	0.72
	29.5	-2.59	0.0048				
						X^2	-2.11

Based on the table above, the reseracher found that x^2_{count} = -2.11 while x^2_{table} = 11.070, cause $x^2_{count} < x^2_{table}$ (-2.11 < 11.070) with degree of freedom (dk) = 6–1 = 5 and significant level α = 5%. So distribution of XI MIA-3 class (pre-test) is normal.

5. Median

No	Interval	F	Fk
1	30 – 38	1	1
2	39 – 47	4	5
3	48 – 56	9	14
4	57 – 65	**6**	**20**
5	66 – 74	3	23
6	75 – 83	4	27
7	84 – 92	1	30

Position of Me in the interval of classes is number 4, that:

Bb = 56.5

F   = 9

fm = 6

i   = 9

n   = 29

1/2n= 14.5

So :

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

$$= 56.5 + 9 \left(\frac{14.5 - 9}{6} \right)$$

$$= 56.5 + 9 \ (0.92)$$

$$= 56.5 + 8.28$$

$$= 64.78$$

6. Modus

No	Interval	f	Fk
1	30 – 38	1	1
2	39 – 47	4	5
3	48 – 56	**9**	**14**
4	57 – 65	6	20

5	66 – 74	3	23
6	75 – 83	4	27
7	84 – 92	1	30

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

L   = 47.5

d_1 = 4

d_2 = 6

i   = 9

So,

$$M_o = 47.5 + \frac{4}{4+6} \, 9$$

$$= 47.5 + 0.4 \ (9)$$

$$= 47.5 + 3.6$$

$$= 51.1$$

RESULT OF NORMALITY TEST IN PRE TEST

RESULT OF THE NORMALITY TEST OF XI IIS-2 IN PRE-TEST

1. The score of XI IIS-2 class in pre test from low score to high score:

30	30	30	40	40	40	40	40	45	45
45	45	45	45	50	50	50	50	50	50
55	55	55	60	60	60	60	65	70	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)

$$= 1 + 4.874$$

$$= 5.874$$

$$= 6$$

4. Length of Classes $= \dfrac{range}{total\ of\ class} = \dfrac{50}{6} = 8.3 = 8$

5. Mean

Interval Class	F	X	x$'$	fx$'$	x$'^2$	fx$'^2$
30 – 37	3	38.5	+3	9	9	27
38 – 45	11	46.5	+2	22	4	44
46 – 53	6	54.5	+1	9	1	9
54 – 61	7	**62.5**	0	0	0	0
62 – 69	1	70.5	-1	-1	1	1
70 – 77	1	78.5	-2	-2	4	4
78 – 86	1	86.5	-3	-3	9	9
$i = 8$	30	-		34	-	94

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

$$= 62.5 + 8\ (\tfrac{34}{30})$$

$$= 62.5 + 8\ (1.13)$$

$$= 62.5 + 9.04$$

$$= 71.54$$

$$SD_t = i\sqrt{\frac{\Sigma fx\prime^2}{n} - \left(\frac{\Sigma fx\prime}{n}\right)^2}$$

$$= 8\sqrt{\frac{94}{30} - \left(\frac{34}{30}\right)^2}$$

$$= 8\sqrt{3.13 - (1.13)^2}$$

$$= 8\sqrt{3.13 - 1.13}$$

$$= 8\sqrt{2}$$

= 8 x 1.4

= 11.31

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0-f_h)}{f_h}$
78 – 86	86.5	1.25	0.3944				
				0.22	6.6	3	-0.54
70 – 77	77.5	0.46	0.1772				
				-0.22	-6.6	11	-2.67
62 – 69	69.5	-0.25	0.4013				
				0.23	6.9	6	-0.13
54 – 61	61.5	-0.96	0.1685				
				0.12	3.6	7	0.94
46 – 53	53.5	-1.67	0.0475				
				0.03	0.9	1	0.11
38 – 45	45.5	-2.37	0.0089				
				0.007	0.21	1	3.76
30 – 37	37.5	-3.03	0.0012				
				0.001	0.03	1	32.3
	29.5	-3.79	0.00008				
						X^2	33.77

Based on the table above, the reseracher found that $x^2_{count} = 33.77$ while $x^2_{table} = 11.070$, cause $x^2_{count} > x^2_{table}$ (33.77> 11.070) with degree of freedom (dk) = 6–1 = 5 and significant level $\alpha = 5\%$. So distribution of XI IIS-2 class (pre-test) is not normal.

6. Median

No	Interval	F	Fk
1	30 – 37	3	3
2	38 – 45	11	14
3	**46 – 53**	**6**	**20**
4	54 – 61	7	27
5	62 – 69	1	28
6	70 – 77	1	29

| 7 | 78 – 86 | 1 | 30 |

Position of Me in the interval of classes is number 3, that:

Bb = 45..5

F   = 11

fm = 6

i   = 8

n   = 30

1/2n= 15

So :

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

$$= 45.5 + 8\left(\frac{15-11}{6}\right)$$

$$= 45.5 + 8\ (0.67)$$

$$= 45.5 + 5.36$$

$$= 50.85$$

7. Modus

No	Interval	F	Fk
1	30 – 37	3	30 – 37
2	**38 – 45**	**11**	**38 – 45**
3	46 – 53	6	46 – 53
4	54 – 61	7	54 – 61
5	62 – 69	1	62 – 69
6	70 – 77	1	70 – 77

7	78 – 86	1	78 – 86

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

L   = 37.5

d_1 = 3

d_2 = 6

i   = 8

So,

$M_o = 42.5 + \dfrac{3}{3+6} \; 8$

    = 42.5 + 0.33 (8)

    = 42.5 + 2.67

    = 45.17

RESULT OF NORMALITY TEST IN PRE TEST

RESULT OF THE NORMALITY TEST OF XI IIS-3 IN PRE-TEST

1. The score of XI IIS-3 class in pre test from low score to high score:

30	30	35	35	35	40	40	45	45	45
45	50	50	50	50	50	50	50	50	55
55	55	55	55	55	60	60	60	70	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 (1.477)

                      = 1 + 4.874

                      = 5.874

$$= 6$$

4. Length of Classes $= \dfrac{range}{total\ of\ class} = \dfrac{55}{6} = 9.17 = 9$

5. Mean

Interval Class	F	X	x´	fx´	x´²	fx´²
30 – 38	5	34	+3	15	9	45
39 – 47	6	43	+2	12	4	24
48 – 56	14	52	+1	14	1	14
57 – 65	**3**	**61**	0	0	0	0
66 – 74	1	70	-1	-1	1	1
75 – 83	0	79	-2	0	4	0
84 – 92	1	88	-3	-3	9	9
$i = 9$	30	-	-	37	-	93

$$Mx = M^1 + i\dfrac{\Sigma fx^1}{N}$$

$$= 61 + 9\left(\dfrac{37}{30}\right)$$

$$= 61 + 9\,(.123)$$

$$= 61 + 11.1$$

$$= 72.1$$

$$SD_t = i\sqrt{\dfrac{\Sigma fx'^2}{n} - \left(\dfrac{\Sigma fx'}{n}\right)^2}$$

$$= 9\sqrt{\dfrac{93}{30} - \left(\dfrac{37}{30}\right)^2}$$

$$= 9\sqrt{3.1 - (1.23)^2}$$

$$= 9\sqrt{3.1 - 1.51}$$

$$= 9\sqrt{1.59}$$

$$= 9 \times 1.26$$

$= 11.34$

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0-f_h)}{f_h}$
84 – 92	92.5	1.80	0.9641				
				0.12	3.6	5	0.39
75 – 83	83.5	1.00	0.8413				
				0.22	6.6	6	-0.09
66 – 74	74.5	0.21	0.6217				
				0.34	10.2	14	3.8
57 – 65	65.5	-0.58	0.2843				
				0.20	6	3	-0.5
48 – 56	56.5	-1.38	0.0823				
				0.07	2.1	1	-0.52
39 – 48	47.5	-2.17	0.0150				
				0.01	0.3	0	-1
30 – 38	38.5	-2.96	0.0015				
				0.001	0.03	1	32.3
	29.5	-3.76	0.00008				
						X^2	30.9

Based on the table above, the reseracher found that $x^2{}_{count} = 30.9$ while $x^2{}_{table} = 11.070$, cause $x^2{}_{count} > x^2{}_{table}$ (30.9 > 11.070) with degree of freedom (dk) = 6–1 = 5 and significant level $\alpha = 5\%$. So distribution of XI IIS-3 class (pre-test) is not normal.

6. Median

No	Interval	F	Fk
1	30 – 38	5	5
2	39 – 47	6	11
3	**48 – 56**	**14**	**25**
4	57 – 65	3	28
5	66 – 74	1	29

| 6 | 75 – 83 | 0 | 29 |
| 7 | 84 – 92 | 1 | 30 |

Position of Me in the interval of classes is number 3, that:

Bb = 47.5

F   = 6

fm = 14

i   = 9

n   = 30

1/2n= 15

So :

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

$$= 47.5 + 9 \left(\frac{15-6}{14} \right)$$

$$= 47.5 + 9 \ (0.64)$$

$$= 47.5 + 5.8$$

$$= 53.3$$

7. Modus

No	Interval	F	Fk
1	30 – 38	5	5
2	39 – 47	6	11
3	48 – 56	**14**	**25**
4	57 – 65	3	28
5	66 – 74	1	29
6	75 – 83	0	29
7	84 – 92	1	30

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

L $= 47.5$

$d_1 = 6$

$d_2 = 3$

i $= 9$

So,

$M_o = 47.5 + \dfrac{6}{6+3} \, 9$

$= 47.5 + 0.67 \, (9)$

$= 47.5 + 6$

$= 53.5$

Appendix 20

RESULT OF NORMALITY TEST IN POST TEST

RESULT OF THE NORMALITY TEST OF XI MIA-2 IN POST-TEST

9. The score of XI MIA-2 class in post test from low score to high score:

60	60	65	65	65	70	70	70	70	70
70	70	70	70	70	75	75	75	75	75
80	80	85	85	85	85	90	95	95	

10. High   = 95

    Low   = 60

    Range   = High – Low

             = 95 - 60

             = 35

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

                     = 1 + 3,3 log (29)

                     = 1 + 3,3 (1.462)

                     = 1 + 4.82

                     = 5.82

                     = 6

12.   Length of Classes $= \frac{range}{total\ of\ class} = \frac{35}{6} = 5.83 = 6$

13.   Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
60 – 65	5	62.2	+2	20	4	20
66 – 71	10	68.5	+1	10	1	10
72 – 77	5	74.5	0	0	0	0
78 – 83	2	80.5	-1	-2	1	2
84 – 89	4	86.5	-2	-8	4	16
90 – 95	3	92.5	-3	-9	9	27
$i = 6$	29	-	-	11	-	73

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

$$= 71.5 + 6 \left(\frac{11}{29}\right)$$

$$= 71.5 + 6 \,(0.38)$$

$$= 71.5 + 2.28$$

$$= 73.78$$

$$SD_t = i\sqrt{\frac{\sum fx\prime^2}{n} - \left(\frac{\sum fx\prime}{n}\right)^2}$$

$$= 6\sqrt{\frac{73}{29} - \left(\frac{11}{29}\right)^2}$$

$$= 6\sqrt{2.52 - (0.23)^2}$$

$$= 6\sqrt{2.52 - 0.05}$$

$$= 6\sqrt{2.47}$$

$$= 6 \times 1.57 = 9.42$$

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	$\dfrac{(f_0\text{-}f_h)}{f_h}$
90 – 95	95.5	2.31	0.4896				
				0.03	0.79	5	5.33
84 – 89	895	1.67	0.4625				
				0.114	3.31	10	2.02
78 – 83	83.5	1.03	0.3485				
				0.20	5.71	5	-0.12
72 – 77	77.5	0.39	0.1517				
				-0.25	-7.35	2	-1.27
66 – 71	71.5	-0.24	0.4052				
				0.21	6.26	4	-0.36
60 – 65	65.5	-0.88	0.1894				
				0.12	3.63	3	-0.17
	59.5	-1.52	0.0643				
						X^2	5.42

Based on the table above, the reseracher found that $x^2_{count} = 5.42$ while

$x^2_{table} = 11.070$, cause $x^2_{count} < x^2_{table}$ (5.42 < 11.070) with degree of freedom (dk)

= 6–1 = 5 and significant level α = 5%. So distribution of XI MIA-2 class (post-test) is normal.

14. Median

No	Interval	F	Fk
1	60 – 65	5	5
2	66 – 71	**10**	**15**
3	72 – 77	5	20
4	78 – 83	2	22
5	84 – 89	4	26
6	90 – 95	3	29

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

Bb = 65.5

F   = 5

fm = 10

i   = 6

n   = 29

1/2n = 14.5

So :

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

$$= 65.5 + 6\left(\frac{14.5-5}{10}\right)$$

$$= 65.5 + 6\,(0.95)$$

$$= 65.5 + 5.7$$

$$= 71.7$$

15. Modus

No	Interval	F	Fk
1	60 – 65	5	5
2	66 – 71	**10**	**15**

3	72 – 77	5	20
4	78 – 83	2	22
5	84 – 89	4	26
6	90 – 95	3	29

$M_o = L + \dfrac{d_1}{d_1 + d_2} \, i$

L = 65.5.5

d_1 = 5

d_2 = 5

i = 6

So,

M_o = 65.5 + $\dfrac{5}{5+6}$ 6

= 65.5 + 0.45 (6)

= 65.5 + 2.7

= 68.2

RESULT OF THE NORMALITY TEST OF XI MIA-3 IN POST-TEST

7. The score of XI MIA-3 class in pre test from low score to high score:

60	60	65	70	70	70	70	70	70	70
70	70	75	75	75	75	75	75	75	75
75	75	75	80	80	80	85	90	95	

16. High = 95

   Low = 60

   Range = High – Low

   = 95 - 60
   = 35

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

   = 1 + 3,3 log (29)

   = 1 + 3,3 (1.462)

   = 1 + 4.82

   = 5.82

   = 6

18. Length of Classes $= \frac{range}{total\ of\ class} = \frac{35}{6} = 5.83 = 6$

19. Mean

Interval Class	F	X	x$'$	fx$'$	x$'^2$	fx$'^2$
60 – 65	3	62.2	+2	6	4	12
66 – 71	9	68.5	+1	9	1	9
72 – 77	11	74.5	0	0	0	0
78 – 83	3	80.5	-1	-3	1	3
84 – 89	1	86.5	-2	-2	4	4
90 – 95	2	92.5	-3	-6	9	18
$i = 6$	29	-	-	4	-	46

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

$$= 74.5 + 6\ (\frac{4}{29})$$

$$= 74.5 + 6\ (0.14)$$

$$= 74.5 + 0.84$$

$$= 75.34$$

$$SD_t = i\sqrt{\frac{\sum fx'^2}{n} - \left(\frac{\sum fx'}{n}\right)^2}$$

$$= 6\sqrt{\frac{46}{29} - \left(\frac{4}{29}\right)^2}$$

$$= 6\sqrt{1.58 - (0.14)^2}$$

$$= 6\sqrt{1.58 - 0.37}$$

$$= 6\sqrt{1.21}$$

$$= 6 \text{ x } 1.21 = 7.26$$

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0\text{-}f_h)}{f_h}$
90 – 95	95.5	2.78	0.4980				
				0.24	0.68	3	3.38
84 – 89	895	1.95	0.4744				
				0.106	3.07	9	1.93
78 – 83	83.5	1.12	0.3686				
				0.25	7.38	11	0.49
72 – 77	77.5	0.29	0.1141				
				-0.19	-5.43	3	-1.55
66 – 71	71.5	-0.52	0.3015				
				0.21	6.18	1	-0.84
60 – 65	65.5	-1.35	0.0885				
				0.07	2.14	2	-0.07
	59.5	-2.18	0.0146				
						X^2	3.35

Based on the table above, the reseracher found that $x^2_{count} = 3.35$ while $x^2_{table} = 11.070$, cause $x^2_{count} < x^2_{table}$ (3.35 < 11.070) with degree of freedom (dk)

= 6–1 = 5 and significant level α = 5%. So distribution of XI MIA-3 class (post-test) is normal.

8. Median

No	Interval	F	Fk
1	60 – 65	3	3
2	66 – 71	9	11
3	72 – 77	11	**22**
4	78 – 83	3	25
5	84 – 89	1	27
6	90 – 95	2	29

Position of Me in the interval of classes is number 3, that:

Bb = 71.5

F   = 9

fm = 11

i   = 6

n   = 29

1/2n= 14.5

So :

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

$$= 71.5 + 6 \left(\frac{14.5 - 9}{11} \right)$$

$$= 71.5 + 6 \ (0.5)$$

$$= 71.5 + 3$$

$$= 74.5$$

9. Modus

No	Interval	F	Fk
1	60 – 65	3	3
2	66 – 71	9	11

3	72 – 77	11	**22**
4	78 – 83	3	25
5	84 – 89	1	27
6	90 – 95	2	29

$M_o = L + \dfrac{d_1}{d_1 + d_2}\, i$

L   = 71..5

d_1 = 9

d_2 = 3

i   = 6

So,

M_o = $71.5 + \dfrac{9}{9+3} 6$

   = 71.5 + 0.75 (6)

   = 71.5 + 4.5

   = 75

Appendix 21

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:

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

$$Tt = \frac{63.5 - 63.484}{\sqrt{\left(\frac{(29-1)13.14+(29-1)15.84}{29+29-2}\right)\left(\frac{1}{29}+\frac{1}{29}\right)}}$$

$$Tt = \frac{0.02}{\sqrt{\left(\frac{28(13.14)+28(15.84)}{56}\right)\left(\frac{2}{29}\right)}}$$

$$Tt = \frac{0.02}{\sqrt{\left(\frac{367.92+443.52}{56}\right)(0.07)}}$$

$$Tt = \frac{0.02}{\sqrt{(811.44)(0.07)}}$$

$$Tt = \frac{0.02}{\sqrt{56.8}}$$

$$Tt = \frac{0.02}{7.54}$$

$$Tt = 0.003$$

Based on researcher calculation result of homogeneity test of the both averages, researcher found that $t_{count} = 0.003$ with opportunity $(1-\alpha) = 1 - 5\% = 95\%$ and dk $= n_1 + n_2 - 2 = 29 + 29 - 2 = 56$, $t_{table} = 1.67252$. So, $t_{count} < t_{table}$ $(0.003 < 1.67252)$ and H_0 is accepted, it means no difference the average between the first class as experimental class 1 and the second class as experimental class 2 in this research.

Appendix 22

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:

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

$$Tt = \frac{75.34 - 73.78}{\sqrt{\left(\frac{(29-1)7.26 + (29-1)9.42}{29+29-2}\right)\left(\frac{1}{29} + \frac{1}{29}\right)}}$$

$$Tt = \frac{1.56}{\sqrt{\left(\frac{28(7.26)+28(9.42)}{56}\right)\left(\frac{2}{29}\right)}}$$

$$Tt = \frac{1.56}{\sqrt{\left(\frac{203.28+263.76}{56}\right)\left(\frac{2}{29}\right)}}$$

$$Tt = \frac{1.56}{\sqrt{\left(\frac{467.04}{56}\right)(0.07)}}$$

$$Tt = \frac{1.56}{\sqrt{(8.34)(0.07)}}$$

$$Tt = \frac{1.56}{\sqrt{0.58}}$$

$$Tt = \frac{1.56}{0.76}$$

$Tt = 2.053$

Based on researcher calculation result of homogeneity test of the both averages, researcher found that $t_{count} = 2.053$ with opportunity $(1-\alpha) = 1 - 5\% = 95\%$ and dk $= n_1 + n_2 - 2 = 29 + 29 - 2 = 56$, $t_{table} = 1.67252$. So, $t_{count} > t_{table}$ (2.053 > 1.67252) and H_a is accepted, it means there was the difference average between the experimental class 1 and the experimental class 2 in this research

Appendix 23

Chi-Square Table

dk	Significant level					
	50%	30%	20%	10%	5%	1%
1	0,455	1,074	1,642	2,706	3,841	6,635
2	1,386	2,408	3,219	4,605	5,991	9,210
3	2,366	3,665	4,642	6,251	7,815	11,341
4	3,357	4,878	5,989	7,779	9,488	13,277
5	4,351	6,064	7,289	9,236	11,070	15,086
6	5,348	7,231	8,558	10,645	12,592	16,812
7	6,346	8,383	9,803	12,017	14,067	18,475
8	7,344	9,524	11,030	13,362	15,507	20,090
9	8,343	10,656	12,242	14,684	16,919	21,666
10	9,342	11,781	13,442	15,987	18,307	23,209
11	10,341	12,899	14,631	17,275	19,675	24,725
12	11,340	14,011	15,812	18,549	21,026	26,217
13	12,340	15,119	16,985	19,812	22,362	27,688
14	13,339	16,222	18,151	21,064	23,685	29,141
15	14,339	17,222	19,311	22,307	24,996	30,578
16	15,338	18,418	20,465	23,542	26,296	32,000
17	16,338	19,511	21,615	24,769	27,587	33,409
18	17,338	20,601	22,760	25,989	28,869	34,805
19	18,338	21,689	23,900	27,204	30,144	36,191
20	19,337	22,775	25,038	28,412	31,410	37,566
21	20,337	23,858	26,171	29,615	32,671	38,932
22	21,337	24,939	27,301	30,813	33,924	40,289
23	22,337	26.018	28,429	32,007	35,172	41,638
24	23,337	27,096	29,553	33,196	35,415	42,980
25	24,337	28,172	30,675	34,382	37,652	44,314
26	25,336	29,246	31,795	35,563	38,885	45,642
27	26,336	30,319	32,912	36,741	40,113	46,963
28	27,336	31,391	34,027	37,916	41,337	48,278
29	28,336	32,461	35,139	39,087	42,557	49,588
30	29,336	33,530	36,250	40,256	43,773	50,892

Appendix 24

Z-Table

Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.9	0.00005	0.00005	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00003	0.00003
-3.8	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00005	0.00005	0.00005
-3.7	0.00011	0.00010	0.00010	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008
-3.6	0.00016	0.00015	0.00015	0.00014	0.00014	0.00013	0.00013	0.00012	0.00012	0.00011
-3.5	0.00023	0.00022	0.00022	0.00021	0.00020	0.00019	0.00019	0.00018	0.00017	0.00017
-3.4	0.00034	0.00032	0.00031	0.00030	0.00029	0.00028	0.00027	0.00026	0.00025	0.00024
-3.3	0.00048	0.00047	0.00045	0.00043	0.00042	0.00040	0.00039	0.00038	0.00036	0.00035
-3.2	0.00069	0.00066	0.00064	0.00062	0.00060	0.00058	0.00056	0.00054	0.00052	0.00050
-3.1	0.00097	0.00094	0.00090	0.00087	0.00084	0.00082	0.00079	0.00076	0.00074	0.00071
-3.0	0.00135	0.00131	0.00126	0.00122	0.00118	0.00114	0.00111	0.00107	0.00104	0.00100
-2.9	0.00187	0.00181	0.00175	0.00169	0.00164	0.00159	0.00154	0.00149	0.00144	0.00139
-2.8	0.00256	0.00248	0.00240	0.00233	0.00226	0.00219	0.00212	0.00205	0.00199	0.00193
-2.7	0.00347	0.00336	0.00326	0.00317	0.00307	0.00298	0.00289	0.00280	0.00272	0.00264
-2.6	0.00466	0.00453	0.00440	0.00427	0.00415	0.00402	0.00391	0.00379	0.03680	0.00357
-2.5	0.00621	0.00604	0.00587	0.00570	0.00554	0.00539	0.00523	0.00508	0.00494	0.00480
-2.4	0.00820	0.00798	0.00776	0.00755	0.00734	0.00714	0.00695	0.00676	0.00657	0.00639
-2.3	0.01072	0.01044	0.01017	0.00990	0.00964	0.00939	0.00914	0.00889	0.00866	0.00842
-2.2	0.01390	0.01355	0.01321	0.01287	0.01255	0.01222	0.01191	0.01160	0.01130	0.01101
-2.1	0.01786	0.01743	0.01700	0.01659	0.01618	0.01578	0.01539	0.01500	0.01463	0.01426
-2.0	0.02275	0.02222	0.02169	0.02118	0.02068	0.02018	0.01970	0.01923	0.01876	0.01831
-1.9	0.02872	0.02807	0.02743	0.02680	0.02619	0.02559	0.02500	0.02442	0.02385	0.02330
-1.8	0.03593	0.03515	0.03438	0.03362	0.03288	0.03216	0.03144	0.03074	0.03005	0.02938
-1.7	0.04457	0.04363	0.04272	0.04182	0.04093	0.04006	0.03920	0.03836	0.03754	0.03673
-1.6	0.05480	0.05370	0.05262	0.05155	0.05050	0.04947	0.04846	0.04746	0.04648	0.04551
-1.5	0.06681	0.06552	0.06426	0.06301	0.06178	0.06057	0.05938	0.05821	0.05705	0.05592
-1.4	0.08076	0.07927	0.07780	0.07636	0.07493	0.07353	0.07215	0.07078	0.06944	0.06811
-1.3	0.09680	0.09510	0.09342	0.09176	0.09012	0.08851	0.08691	0.08534	0.08379	0.08226
-1.2	0.11507	0.11314	0.11123	0.10935	0.10749	0.10565	0.10383	0.10204	0.10027	0.09853
-1.1	0.13567	0.13350	0.13136	0.12924	0.12714	0.12507	0.12302	0.12100	0.11900	0.11702
-1.0	0.15866	0.15625	0.15386	0.15151	0.14917	0.14686	0.14457	0.14231	0.14007	0.13786
-0.9	0.18406	0.18141	0.17879	0.17619	0.17361	0.17106	0.16853	0.16602	0.16354	0.16109
-0.8	0.21186	0.20897	0.20611	0.20327	0.20045	0.19766	0.19489	0.19215	0.18943	0.18673
-0.7	0.24196	0.23885	0.23576	0.23270	0.22965	0.22663	0.22363	0.22065	0.21770	0.21476

-0.6	0.27425	0.27093	0.26763	0.26435	0.26109	0.25785	0.25463	0.25143	0.24825	0.24510
-0.5	0.30854	0.30503	0.30153	0.29806	0.29460	0.29116	0.28774	0.28434	0.28096	0.27760
-0.4	0.34458	0.34090	0.33724	0.33360	0.32997	0.32636	0.32276	0.31918	0.31561	0.31207
-0.3	0.38209	0.37828	0.37448	0.37070	0.36693	0.36317	0.35942	0.35569	0.35197	0.34827
-0.2	0.42074	0.41683	0.41294	0.40905	0.40517	0.40129	0.39743	0.39358	0.38974	0.38591
-0.1	0.46017	0.45620	0.45224	0.44828	0.44433	0.44038	0.43644	0.43251	0.42858	0.42465
-0.0	0.50000	0.49601	0.49202	0.48803	0.48405	0.48006	0.47608	0.47210	0.46812	0.46414

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

2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990
3,1	0,4990	0,4991	0,4991	0.4991	0,4992	0,4992	0,4992	0,4992	0,4993	0,4993
3,2	0,4993	0,4993	0,4994	0,4994	0,4994	0,4994	0,4994	0,4995	0,4995	0,4995
3,3	0,4995	0,4995	0,4995	0,4996	0,4996	0,4996	0,4996	0,4996	0,4997	0,4997
3,4	0,4997	0,4997	0,4997	0,4997	0,4997	0,4997	0,4997	0,4997	0,4997	0,4998
3,5	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998
3,6	0,4998	0,4998	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999
3,7	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999
3,8	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999
3,9	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000

Appendix 25

Percentage Points of the t Distribution

Pr df	0.25 0.50	0.10 0.20	0.05 0.10	0.025 0.050	0.01 0.02	0.005 0.010	0.001 0.002
1	1.00000	3.07768	6.31375	12.70620	31.82052	63.65674	318.30884
2	0.81650	1.88562	2.91999	4.30265	6.96456	9.92484	22.32712
3	0.76489	1.63774	2.35336	3.18245	4.54070	5.84091	10.21453
4	0.74070	1.53321	2.13185	2.77645	3.74695	4.60409	7.17318
5	0.72669	1.47588	2.01505	2.57058	3.36493	4.03214	5.89343
6	0.71756	1.43976	1.94318	2.44691	3.14267	3.70743	5.20763
7	0.71114	1.41492	1.89458	2.36462	2.99795	3.49948	4.78529
8	0.70639	1.39682	1.85955	2.30600	2.89646	3.35539	4.50079
9	0.70272	1.38303	1.83311	2.26216	2.82144	3.24984	4.29681
10	0.69981	1.37218	1.81246	2.22814	2.76377	3.16927	4.14370
11	0.69745	1.36343	1.79588	2.20099	2.71808	3.10581	4.02470
12	0.69548	1.35622	1.78229	2.17881	2.68100	3.05454	3.92963
13	0.69383	1.35017	1.77093	2.16037	2.65031	3.01228	3.85198
14	0.69242	1.34503	1.76131	2.14479	2.62449	2.97684	3.78739
15	0.69120	1.34061	1.75305	2.13145	2.60248	2.94671	3.73283
16	0.69013	1.33676	1.74588	2.11991	2.58349	2.92078	3.68615
17	0.68920	1.33338	1.73961	2.10982	2.56693	2.89823	3.64577
18	0.68836	1.33039	1.73406	2.10092	2.55238	2.87844	3.61048
19	0.68762	1.32773	1.72913	2.09302	2.53948	2.86093	3.57940
20	0.68695	1.32534	1.72472	2.08596	2.52798	2.84534	3.55181
21	0.68635	1.32319	1.72074	2.07961	2.51765	2.83136	3.52715
22	0.68581	1.32124	1.71714	2.07387	2.50832	2.81876	3.50499
23	0.68531	1.31946	1.71387	2.06866	2.49987	2.80734	3.48496
24	0.68485	1.31784	1.71088	2.06390	2.49216	2.79694	3.46678
25	0.68443	1.31635	1.70814	2.05954	2.48511	2.78744	3.45019
26	0.68404	1.31497	1.70562	2.05553	2.47863	2.77871	3.43500
27	0.68368	1.31370	1.70329	2.05183	2.47266	2.77068	3.42103
28	0.68335	1.31253	1.70113	2.04841	2.46714	2.76326	3.40816
29	0.68304	1.31143	1.69913	2.04523	2.46202	2.75639	3.39624
30	0.68276	1.31042	1.69726	2.04227	2.45726	2.75000	3.38518
31	0.68249	1.30946	1.69552	2.03951	2.45282	2.74404	3.37490
32	0.68223	1.30857	1.69389	2.03693	2.44868	2.73848	3.36531
33	0.68200	1.30774	1.69236	2.03452	2.44479	2.73328	3.35634
34	0.68177	1.30695	1.69092	2.03224	2.44115	2.72839	3.34793
35	0.68156	1.30621	1.68957	2.03011	2.43772	2.72381	3.34005
36	0.68137	1.30551	1.68830	2.02809	2.43449	2.71948	3.33262
37	0.68118	1.30485	1.68709	2.02619	2.43145	2.71541	3.32563

df	38	0.68100	1.30423	1.68595	2.02439	2.42857	2.71156	3.31903

38	0.68100	1.30423	1.68595	2.02439	2.42857	2.71156	3.31903
39	0.68083	1.30364	1.68488	2.02269	2.42584	2.70791	3.31279
40	0.68067	1.30308	1.68385	2.02108	2.42326	2.70446	3.30688

Percentage Points of the t Distribution

Pr	**0.25**	**0.10**	**0.05**	**0.025**	**0.01**	**0.005**	**0.001**
df	**0.50**	**0.20**	**0.10**	**0.050**	**0.02**	**0.010**	**0.002**
41	0.68052	1.30254	1.68288	2.01954	2.42080	2.70118	3.30127
42	0.68038	1.30204	1.68195	2.01808	2.41847	2.69807	3.29595
43	0.68024	1.30155	1.68107	2.01669	2.41625	2.69510	3.29089
44	0.68011	1.30109	1.68023	2.01537	2.41413	2.69228	3.28607
45	0.67998	1.30065	1.67943	2.01410	2.41212	2.68959	3.28148
46	0.67986	1.30023	1.67866	2.01290	2.41019	2.68701	3.27710
47	0.67975	1.29982	1.67793	2.01174	2.40835	2.68456	3.27291
48	0.67964	1.29944	1.67722	2.01063	2.40658	2.68220	3.26891
49	0.67953	1.29907	1.67655	2.00958	2.40489	2.67995	3.26508
50	0.67943	1.29871	1.67591	2.00856	2.40327	2.67779	3.26141
51	0.67933	1.29837	1.67528	2.00758	2.40172	2.67572	3.25789
52	0.67924	1.29805	1.67469	2.00665	2.40022	2.67373	3.25451
53	0.67915	1.29773	1.67412	2.00575	2.39879	2.67182	3.25127
54	0.67906	1.29743	1.67356	2.00488	2.39741	2.66998	3.24815
55	0.67898	1.29713	1.67303	2.00404	2.39608	2.66822	3.24515
56	0.67890	1.29685	1.67252	2.00324	2.39480	2.66651	3.24226
57	0.67882	1.29658	1.67203	2.00247	2.39357	2.66487	3.23948
58	0.67874	1.29632	1.67155	2.00172	2.39238	2.66329	3.23680
59	0.67867	1.29607	1.67109	2.00100	2.39123	2.66176	3.23421
60	0.67860	1.29582	1.67065	2.00030	2.39012	2.66028	3.23171
61	0.67853	1.29558	1.67022	1.99962	2.38905	2.65886	3.22930
62	0.67847	1.29536	1.66980	1.99897	2.38801	2.65748	3.22696
63	0.67840	1.29513	1.66940	1.99834	2.38701	2.65615	3.22471
64	0.67834	1.29492	1.66901	1.99773	2.38604	2.65485	3.22253
65	0.67828	1.29471	1.66864	1.99714	2.38510	2.65360	3.22041
66	0.67823	1.29451	1.66827	1.99656	2.38419	2.65239	3.21837
67	0.67817	1.29432	1.66792	1.99601	2.38330	2.65122	3.21639
68	0.67811	1.29413	1.66757	1.99547	2.38245	2.65008	3.21446
69	0.67806	1.29394	1.66724	1.99495	2.38161	2.64898	3.21260
70	0.67801	1.29376	1.66691	1.99444	2.38081	2.64790	3.21079
71	0.67796	1.29359	1.66660	1.99394	2.38002	2.64686	3.20903
72	0.67791	1.29342	1.66629	1.99346	2.37926	2.64585	3.20733
73	0.67787	1.29326	1.66600	1.99300	2.37852	2.64487	3.20567
74	0.67782	1.29310	1.66571	1.99254	2.37780	2.64391	3.20406

75	0.67778	1.29294	1.66543	1.99210	2.37710	2.64298	3.20249
76	0.67773	1.29279	1.66515	1.99167	2.37642	2.64208	3.20096
77	0.67769	1.29264	1.66488	1.99125	2.37576	2.64120	3.19948
78	0.67765	1.29250	1.66462	1.99085	2.37511	2.64034	3.19804
79	0.67761	1.29236	1.66437	1.99045	2.37448	2.63950	3.19663
80	0.67757	1.29222	1.66412	1.99006	2.37387	2.63869	3.19526
∞							

APPENDIX 26

RESEARCH DOCUMENTATION

PRE TEST OF EXP. CLASS 1

PRE TEST OF EXP. CLASS 2

TEACHING BY USING QUESTION ANSWER RELATIONSHIP

TEACHING BY USING RECIPROCAL TEACHING CLASS

POST TEST OF EXP. CLASS 1

POST TEST EXP. CLASS 2

KEMENTERIAN AGAMA
INSTITUT AGAMA ISLAM NEGERI PADANGSIDIMPUAN
FAKULTAS TARBIYAH DAN ILMU KEGURUAN
JURUSAN TADRIS BAHASA INGGRIS
Jalan H.T. Rizal Nurdin Km 4,5 Sihitang 22733
Telepon 0634-22080 Faximile 0634-24022

Nomor   : 48/In.14/E.6a/PP.00.9/09/2017   Padangsidimpuan, 20 September 2017
Sifat   : Biasa
Lampiran :
Hal   : Pengesahan Judul dan Pembimbing Skripsi

Kepada Yth. Bapak/Ibu
1. Eka Sustri Harida, M.Pd   (Pembimbing I)
2. Sojuangon Rambe, S.S., M.Pd. (Pembimbing II)
Di –
        Padangsidimpuan
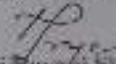
Assalamu'alaikum Wr.Wb.

Dengan hormat, sehubungan dengan hasil sidang bersama tim pengkajian judul skripsi Jurusan Tadris Bahasa Inggris (TBI) Fakultas Tarbiyah dan Ilmu Keguruan IAIN Padangsidimpuan, maka dengan ini kami mohon kepada Bapak/Ibu agar dapat menjadi Pembimbing Skripsi dan melakukan penyempurnaan judul bilamana perlu untuk mahasiswa dibawah ini dengan data sebagai berikut,
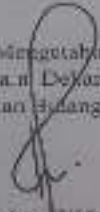
Nama/NIM   : Dewi Sartini/14 203 00027
Fak/Jurusan : Fakultas Tarbiyah dan Ilmu Keguruan/Tadris Bahasa Inggris
Judul Skripsi : The Comparative Study of Students' Reading Comprehension by UsingReciprocal Teaching Strategy (RTS) and Question-Answer Relationship (QAR)Strategy at Grade XI of MAN Sipirok

Demikian surat ini disampaikan, atas perhatian dan kesediaan Bapak/Ibu kami ucapkan terimakasih.

Ketua Jurusan TBI   Sekretaris Jurusan TBI

Rayendriani Fahmei Lubis, M.Ag   Fitri Rayani Siregar, M.Hum
NIP. 19710510 200003 2 001   NIP. 19820731 2009 2 004
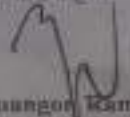

Mengetahui
a.n Dekan
Wakil Dekan Bidang Akademik

Dr. Lelya Hilda, M.Si
NIP. 19720920 200003 2 002

Pernyataan Kesediaan sebagai Pembimbing

BERSEDIA/TIDAK BERSEDIA   BERSEDIA/TIDAK BERSEDIA
Pembimbing I   Pembimbing II

Eka Sustri Harida, M.Pd   Sojuangon Rambe, S.S., M.Pd
NIP. 19750917 200312 2 002   NIP. 19790815 200604 1 003

Nomor : B - 214 /In.14/E.4c/TL.00/04/2018   2 April 2018
Hal   : Izin Penelitian
           Penyelesaian Skripsi.

Yth. Kepala MAN Sipirok
Kabupaten Tapanuli Selatan

Dengan hormat, Dekan Fakultas Tarbiyah dan Ilmu Keguruan Institut Agama Islam Negeri Padangsidimpuan menerangkan bahwa :

Nama   : Dewi Sartini
NIM   : 14 203 00027
Fakultas/Jurusan   : Tarbiyah dan Ilmu Keguruan/TBI
Alamat   : Jl. Situmba 5 Sihitang

adalah benar Mahasiswa IAIN Padangsidimpuan yang sedang menyelesaikan Skripsi dengan Judul "The Comparative Study of Students' Reading Comprehension by Using Reciprocal Teaching Strategy (RTS) and Question-Answer Relationship (QAR) Strategy at Grade XI of MAN Sipirok". Sehubungan dengan itu, kami mohon bantuan Bapak/Ibu untuk memberikan data dan informasi sesuai dengan maksud judul diatas.

Demikian disampaikan, atas kerja sama yang baik diucapkan terimakasih.

                                                                                    Plt. Dekan

                                                                          Dr. Lelya Hilda, M.Si.
                                                                          NIP. 19720920 200003 2 002

Nomor	: B.13C/Ma.02.28/ PP.00.6/04/2018	Sipirok, 09 April 2018
Lampiran	: -	
Hal	: Izin Mengadakan Penelitian	
	Untuk Penyelesaian Skripsi	

Kepada Yth :
Bapak Dekan Fakultas Tarbiyah Dan Ilmu Keguruan
Institut Agama Islam Negeri Padangsidimpuan
di -
Tempat

Assalamu 'alaikum Wr.Wb.

Sehubungan dengan Surat Permohonan Mengadakan Penelitian No. B-214 /In.14/E.4c/TL.00/04/2018 tanggal 02 April 2018 atas :

Nama	:	DEWI SARTINI
NIM	:	14 203 00027
Fakultas/Jurusan	:	Tarbiyah dan Ilmu Keguruan/TBI
Alamat	:	Jl. Situmba 5 Sihitang

Dengan ini telah melaksanakan penelitian di MAN Sipirok dengan judul penelitian :

" **The Comparative Study of Students' Reading Comprehension by Using Reciprocal Teaching Strategy (RTS) and Question-Answer Relationship (QAR) Strategy at Grade XI of MAN Sipirok** "

Demikian surat balasan ini dibuat untuk dapat dipergunakan seperlunya.

Kepala MAN Sipirok

TOHARUDDIN HARAHAP, S.Ag
NIP. 19701126 199703 1 003