THE EFFECT OF MAKE A MATCH TECHNIQUE ON STUDENTS' READING COMPREHENSION AT XI GRADE OF MAN 1 PADANGSIDIMPUAN

A THESIS

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

Written by:

ANNISA NUR HABIBIE A.R. HARAHAP
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TARBIYAH AND TEACHER TRAINING FACULTY STATE INSTITUTE FOR ISLAMIC STUDIES PADANGSIDIMPUAN 2017

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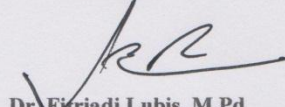   Padangsidimpuan

Assalamu'alaikum Wr.Wb.

      After reading, studying, and giving advices for necessary revision on the thesis belong to **Annisa Nur Habibie A.R. Harahap**, entitled **"The Effect of Make a Match Technique on Students' Reading Comprehension at XI Grade of MAN 1 Padangsidimpuan"**, we approved 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 of Tarbiyah and Teacher Training Faculty in IAIN Padangsidimpuan.

      Therefore, we hope that the thesis will soon be examined in front of the Thesis Examiners Team of English Education Department, Tarbiyah and Teacher Training Faculty IAIN Padangsidimpuan. Thank you.
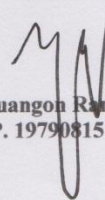

Wassalamu'alaikum Wr.Wb.

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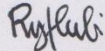Padangsidimpuan, 01st November 2017
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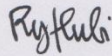
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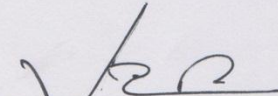
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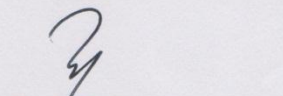
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ABSTRACT

This research focused on the effect of Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan. The students' problems in reading comprehension were: 1) Most of the students still get low grade with averages was 60. 2) Most of students did not understand the text that the students read. They just read the text without comprehending the text. 3) Most of students easy to feel bored when they learnt about the English text. Beside the students' problem, teacher's technique also became a problem in learning English. The teacher still used the conventional teaching and did not have variation in teaching reading. The purpose of this research was to know whether there is the significant effect of Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan.

The method used in this research was experimental research. Two classes were chosen randomly as the sample. They were XI MIA 3 as experimental class that consisted of 40 students and XI MIA 4 as control class that consisted of 40 students. It was taken after conducting normality and homogeneity test. The data was derived from pre-test and post-test. To analyze the data, the researcher used t-test formula.

After analyzing the data, the researcher found that mean score of experimental class after using Make a Match technique was higher than control class. Mean score of experimental class before using Make a Match technique was 64.13 and mean score after using Make a Match technique was 75.23 and it had gain 11.10. The effect of Make a Match technique on students' reading comprehension was 3.009 with t_{count} was higher than t_{table} (3.009 > 2.000). It meant that H_a was accepted and H_0 was rejected. It was concluded that there was a significant effect of Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan.

Key Words: Make a Match Technique, Reading Comprehension

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
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Padangsidimpuan,28th September 2017
Researcher

ANNISA NUR HABIBIE A.R. HARAHAP
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CHAPTER I

INTRODUCTION

A. The Background of the Problems

Reading comprehension is an ability to understand what the readers read where words have context and text have meaning. If the readers can read the words of a text, but they do not understand what they are reading, they are not really reading. Reading comprehension is an essential skill for English learners.

In Indonesian curriculum, reading comprehension has a position as one of the aspect ability for students to master English. It can be seen from English syllabus that place reading comprehension in almost every subject of English material. For example, when the material is about text, the lesson is not only about vocabulary, but also about related contents of the text. So, the reading material can not be separated from reading comprehension, because reading comprehension is one of the aspect ability in English lesson.

The importance of reading comprehension has known by people in educational institution, especially English teachers and learners. Reading comprehension is one of the aspect ability for students to master English text. Without good reading comprehension, students will not understand what they have read and what information that must be taken when they are reading the English material. It means the readers also do understand what they are reading. Besides that, reading comprehension teaches students about the world

around them. Through reading, student learn about peoples, places, and events outside their own experience. They are exposed to ways of life, ideas and beliefs about the world which may be different from those which surround them. This learning is important for its own sake however it also builds a store of background knowledge which helps student learn to read confidently and well. Then, reading comprehension can develops a reader's imagination. This is because when the reader reads, their brains translate the descriptions the reader reads of people, places, and things into pictures. When they are enganged in a story, they are also imagining how the characters are feeling. They use their own experiences to imagine how they would feel in the same situation. So, without good reading comprehension, a learner will not master the English lesson perfectly, especially about the material of English text.

There are some ways to increase students' reading comprehension. Mrs. Afnita Warni, S.Pd as English teacher of MAN 1 Padangsidimpuan had made efforts to increase students' reading comprehension, through giving task to students to translate a text, to answer reading questions, to discuss, and to memorize at least ten words in a week. Besides that, teacher also used media such as laboratorium of language that had been prepared by the headmaster.[1] So, from the teacher efforts, students are hoped to be able comprehend text well and have enough reading comprehension ability.

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[1]Afnita Warni, English Teacher in MAN 1 Padangsidimpuan, *Private Interview,* October 01st 2016, at 11.00 a.m., in MAN 1 Padangsidimpuan.

Based on the information from Mrs. Afnita Warni, S.Pd as English teacher of MAN 1 Padangsidimpuan as the place of this research, the students in this school are poor ability in reading comprehension. It makes them bad in understanding English text and difficult to recall the information that needed from the text. The students have some problems in reading comprehension, such as difficult to understand of English text, bad pronunciation, spend many times to find out the meaning of word by word, getting bored and tired in reading comprehension. The problems are caused by several reasons such as students' educational background, lack vocabularies, their less practice, interesting and motivation, their bad mindset about English, their less technique to learn reading comprehension and teacher's less technique in teaching.[2] The researcher thinks that it is a big problem.

There are some factors in students reading comprehension, such as media and technique. Technique is teacher's way to teach a material or everything teachers do or should do in order to help their learners learn with systematic procedure. A teacher must use various techniques in teaching reading comprehension in order to take students' attention and make a learning process become fun. The application of techniques is important in teaching reading comprehension. Besides that, the existence of media such as picture, audio, video, cards, and other also gives good effect in reading comprehension. So, the students' good reading comprehension also depends on teacher's policy to apply some techniques and use suitable media.

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[2]*Ibid.*

The techiques give big supply in teaching reading comprehension. By applying various technique in teaching reading comprehension, the good result is not only in students' attention, but also in teaching and learning process. Teacher's good class management and the application of suitable technique will give good effect in classroom atmosphere. The application of technique will make students pay attention to the lesson. The various techniques will also avoid students from bored, feel tired, and bad mindset about English. On the contrary, the learning process will be fun and enjoyable. So, reading comprehension teaching techniques is the important role in teaching reading comprehension.

There are many techniques that can be applied in teaching reading comprehension. Some of the popular techniques are Jigsaw technique, Silent reading, Semantic mapping, Skimming, Scanning, Make a match technique and anothers. Those various techniques are suitable and good for enjoyable teaching learning process in reading comprehension classes.

One of the technique to teach reading comprehension is Make a Match technique. This reading comprehension teaching technique uses some cards. The cards consist of questions and answer cards. The question and answer cards connected by the material and suitable with the topic or material that taught by researcher or teacher.

Make a Match technique is one of simple cooperative learning technique. This technique is adaptable to most all subject and grade level.[3] Then, Make a Match technique can motivate students to encourage help each other master skill presented by the teacher, an effective technique for teaching material and students more active study, make a learning become fun and learning material to understand easily.[4] So, this technique can help students in reading comprehension.

Based on the explanation above, the reseracher is interested to introduce Make a Match technique to teach reading comprehension in the school. The researcher wants to know whether Make a Match technique give significant effect on students' reading comprehension or not. So, this technique can be used for the next time by researcher herself or other teachers if it gives positive effect for students. This reason finally guides the researcher to formulate the title *"The Effect of Make a Match Technique on Students' Reading Comprehension at XI Grade of MAN 1 Padangsidimpuan".*

B. The Identification of the Problem

Based on the background of problems above, reading comprehension is an important ability in language teaching, in teaching comprehend about text, and has role as one of the aspect ability of language competence. The importance of reading comprehension has known by people in educational

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[3]Anita Lie, *Cooperative Learning,* (Jakarta: PT. Grasindo, 2008), p. 55.
[4]Istarani, *58 Model Pembelajaran Inovatif,* (Medan: Media Persada, 2014), p.65.

institution, especially English teachers and learners. Reading comprehension is one of the aspect ability for students to master English text.

There are some factors that give effect on reading comprehension, such as media, students' interesting, material, and technique. Technique is everything teachers do or should do in order to help their learners learn with systematic procedure. As Linda and Mary say, "Research seems to indicate that many efficient techniques for learning reading comprehension are available for use."[5] It means that technique is one of the factors that affect reading comprehension. The technique means here is Make a Match technique.

C. The Limitation of the Problem

Based on the identification above, there are some factors that affect students' reading comprehension, such as media, students' interesting, material, and technique. Here, the researcher does not discuss all the factors but the researcher chooses one factor, namely technique. The technique means here is Make a Match technique. Researcher chooses this technique because it can help students to learn and understand the material easily and make a learning become fun.

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[5]Mary M. Dupuis and Linda H. Merchant, *Reading Across the Curriculum: A Research Report for Teachers,* (Bloomington, Indiana: Edinfo Press, 1993), p.17.

D. The Formulation of the Problem

The formulation of the problem in this research are:

1. How is the students' reading comprehension before using Make a Match technique at XI grade of MAN 1 Padangsidimpuan?

2. How is the students' reading comprehension after using Make a Match technique at XI grade of MAN 1 Padangsidimpuan?

3. Is there any significant effect of Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan?

E. The Purpose of the Research

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

1. To examine the reading comprehension before using Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan.

2. To examine the reading comprehension after using Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan.

3. To examine whether there is or there is not any significant effect of using Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan.

F. The Significances of the Research

The significances of this research are:

1. The result of this research is expected to be useful for the English teachers in MAN 1 Padangsidimpuan as their infomation or their source in teaching reading comprehension. This research is also expected to be able to become motivation for the teachers to always make an interesting and fun techniques in teaching reading comprehension.

2. The result of this research is expected to be useful for the headmaster as one domain measurement of teaching progress.

3. The result of this research is expected to be the information for the others researchers to make the further research.

G. The Outline of the Thesis

The systematic of this research is divided into five chapters. Each chapter consist of many sub chapters with detail as follow:

In chapter one, it consist of background of the problems, identification of the problems, limitation of the problem, formulation of the problem, purpose of the research, significances of the research, and the outline of the thesis.

In chapter two, it consist of the theoritical descriptions, which the sub chapters consist of the theoritical description of reading comprehension and Make a Match Technique. Then, review of related findings, framework of thinking and hypothesis.

In chapter three, it consist of research methodology which consist of place and time of the research, research design, population and sample, definition of operational variables, instruments of collecting data, validity and reliability of instrument, procedures of research, and the techniques of analyzing data.

In chapter four, it consist of the result of the research, it explains about the analysis of data. It is consist of description of the data, data analysis, discussion of the research and threats of research.

Finally, in chapter five consist of the conclusion that given conclusion the result of research and suggestions for students, teachers, school, and other researchers that want to do researches related to this research.

CHAPTER II

LITERATURE REVIEW

A. Theoritical Description

1. Reading Comprehension

a. Definition of Reading Comprehension

Reading is comprehension. If students can read the words of a text, but do not understand what they are reading, they are not really reading.[1] As Hornby says, "comprehension is the power of understanding"[2]. It is the ability to understand a language. Richard says that comprehension is the process by which a person understanding the meaning of written or spoken language clearly.[3] Besides that, Roebl says that reading comprehension is an ability to understand what the readers read where words have context and texts have meaning.[4] In addition, David Nunan says that reading comprehension is the instruction program, more emphasis and time may be placed on testing reading comprehension than on teaching reader how to comprehend.[5] From the definitions, it can be concluded that reading comprehension is mental process in which the readers try

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[1]Ellen McIntyre, Nancy Hulan, and Vicky Layne, *Reading Instruction for Diverse Classroom*, (New York: The Guilford Press, 2011), p. 113-114.

[2]A.S. Hornby, *Oxford Advanced Learner's Dictionary,* (New York: Oxford University Press, 1995), p. 324.

[3]Richard A. Renandya, *Language Teaching Methodology,* (Cambridge: Cambridge University, 2000), p.54.

[4]K.M. Roebl, *Developing Reading Comprehension Skill in EFL University Level Student,* (Taiwan: St. Jhon's University, 2003), p. 177.

[5]David Nunan, *Design Task for the Communicative Classroom,* (United Kingdom: Cambridge University Press, 1988), p. 69.

to understand the meaning in the text by interpreting what have been read in order to find the idea given by the writers.

b. The Aims of Reading Comprehension

The aims of reading comprehension are to get and find information include content and meaning of the text based on the purpose. William Grabe states that the aims of reading comprehension as follows:

1) Reading to search for information (scanning and skimming)
2) Reading for quick understanding (skimming)
3) Reading to learn
4) Reading to integrate information
5) Reading to evaluate, critique, and use information
6) Reading for general compehension (in many cases, reading for interest or reading to entertain)[6]

Besides that, Henry Guntur Tarigan states that the aims of reading comprehension as follows:

1) Reading is for identifying important information
2) Reading is for main ideas
3) Reading is for finding the specific information
4) Reading is for underlining the important information
5) Reading is to classify the difficult word
6) Reading is to evaluate
7) Reading is to compare or contrast[7]

Based on the quotations above, the aims of reading comprehension divided into seven importance, they were reading to search for information (scanning and skimming), reading is for main

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[6]William Grabe, *Reading in a Second Language,* (Cambridge:Cambridge University Press), p. 8.

[7]Henry Guntur Tarigan, *Membaca Sebagai Keterampilan Berbahasa,* (Bandung: Aksara, 1990), p. 9-10.

ideas, reading to learn, reading to evaluate, critique, and use information, reading is to classify the difficult word, reading is to compare or contrast and reading for general comprehension.

Meanwhile, in curriculum of MAN 1 Padangsidimpuan, the aims of reading comprehension are to identify topic from the text, identify important or specific information from the text, main ideas of a text, reference to a word and word contextual meaning.[8] So, the aims of teaching reading comprehension relates with students' learning activities where teaching reading comprehension increases the students' understanding of text or subject matter.

c. **The Principle for Teaching Reading Comprehension**

Reading comprehension is a complex process that is imperfectly understood. But it is still possible to layout general principle of good teaching practice based on what teacher know. Generally, in every teaching have principles, morever in teaching reading comprehension. David Nunan states that there are many principles in teaching reading comprehension, they are stated in following:

1) Exploit the reader's background knowledge
2) Build a strong vocabulary base
3) Teach for comprehension
4) Work on increase reading rate
5) Teach reading strategies
6) Encourage readers to transform strategies into skills

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[8]Syllabus of English at Grade XI SMA/MA, (Padangsidimpuan: MAN 1 Padangsidimpuan, 2017/ 2018 Academic Year).

7) Build assessment and evaluation into your teaching
8) Strive for continuous improvement as a reading teacher[9]

Besides that, H. Douglas Brown states that the principle of teaching reading comprehension as follows:

1) Identify your purpose in reading a text.
2) Apply spelling rules and conventions for bottom-up decoding.
3) Use lexical analysis (prefixes, roots, suffixes, and other) to determine meaning.
4) Guess at meaning (of words, idioms, and other) when you are not 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, charts, or semantic map for understanding and retaining information.
9) Distinguish between literal and implied meanings.
10) Capitalize on discourse markers to process relationships.[10]

The quotations above show that there are ten principles for teaching reading comprehension, they were exploit the reader's background knowledge, build a strong vocabulary base, teach for comprehension, work on increase reading rate, teach reading strategies, encourage readers to transform strategies into skills, build assessment and evaluation into your teaching, strive for continuous improvement as a reading teacher, use lexical analysis to determine meaning, and distinguish between literal and implied meanings. They were an important skill in English to get an idea of the text and

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[9]David Nunan, *Practical English Language Teaching,*(New York: McGraw Hill Inc, 2003), p. 74-77.
[10]H. Douglas Brown, *Language Assessment: Principles and Classroom Practices,* (United States of America: Longman, 2004), p. 188-189.

increase students' knowledge and experience through reading comprehension.

d. The Process of Reading Comprehension

Reading comprehension is an important skill in academic achievement. However, the readers also have to know what their purpose is in reading a text, the technique for accomplishing that purposes, and how to retain the information. So, before accomplishing the readers' purpose, they should to know how the process of reading comprehension. The process of reading comprehension can be divided in to three categories, they are:

1) Bottom-up models
2) Top-down models
3) Interactive models[11]

Besides that, William Grabe also states that the process of reading comprehension can be divided in to three categories, they are:

1) Bottom up models
2) Top down models
3) Interactive Models[12]

The quotations above show that there are three categories as the process of reading comprehension, they are Bottom-up models, Top-down models, and Interactive models. Which is the Bottom-up models as the models traditionally depict reading as a mechanical process in which the reader decodes the on going text letter by letter,

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[11]David Nunan, *Op.Cit.,* p. 70-73.
[12]William Grabe, *Op.Cit.,* p. 89.

word by word, sentence by sentence. Top-down models as the models assume that the reader actively controls the comprehension process, directed by reader goals, expectations, and strategic processing. Then, Interactive models as the models are the typical compromise solution. The basic assumption is that useful elements from bottom up and top down views can be combined in some massively interactive set of processes. So, it can be concluded that reading comprehension is a process to understand of written text or printed material. Which is the process of reading use some factors, such as; intellegence, skill in language, background knowledge, and others.

e. **The Levels of Comprehension**

Comprehension is reading specially for getting the content of message, the meaning of the words, inferring implied meaning or another has variety of skills. It must be had by the reader to comprehend it easily or may be quickly. Otto suggests that the level of reading comprehension may be divides into four categorize, they are:

1) Literal Comprehension
2) Interpretation
3) Critical Reading
4) Creative Reading[13]

Besides that, Westwood also says a thing same with Otto, which is the levels of comprehension as below:

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[13]Wayne Otto, *How to Teach Reading,* (USA: Wesley Publishing Company, 1979), p. 163.

1) Literal level
2) Inferential level
3) Critical level
4) Creative level[14]

The quotations above showed that the level of reading comprehension is divided into four categorizes, they are: Literal level for getting the direct meaning that has been explicitly stated, Interpretation/Inferential level for identifying ideas not explicit stated, Critical level for evaluating what is read or bias, and Creative level for applying ideas read to new situation.

Based on four levels above, it can be seen these levels reader to the kind respons required by the reader. It can be as what the reader do in reading a text. The reader infers, interprets, critics and be creative in reading the witen form or printed material. Building these skill is important part of early education and will help students in their understanding of harder texts.

f. Assessment of Reading Comprehension

Assessment is a tool to measure how far the students ability and comprehension of the material.[15] Wadswoth states that there are five types of assessment of reading comprehension. They are:

1) Literal   comprehension,   entails   understanding   the
   information that is explicit in the reading material.

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[14]Peter Westwood, *Reading and Learning Difficulties: Approach to Teaching and Assessment*, (Australia: National Library of Australia, 2001), p. 21-22.

[15]J. Michael O' Malley and Lorraine Valdez Pierce, *Autentic Assessment for English Language Learners*, (America: Addision-Wesley Publishing Company, 1996), p. 98.

2) Inferential comprehension, means interpreting, synthesizing, or extending the information that is explicit in the reading material.
3) Critical comprehension, requires analyzing, evaluating, and making judgments responses to the material read.
4) Affective comprehension, involves a reader's personal and emotional responses to the reading material.
5) Lexical comprehension, means knowing the meaning of key vocabulary words.[16]

Besides that, Nuttall says that there are five aspects of reading which the students should understand to comprehend a text well, they are determining main idea, finding specific information, reference, inference, and vocabulary. Comprehension can be regarded as a condition where certainly exist. Beside a pleasure activity that can increase the reader's knowledge about the information from the text, in language class reading can also consolidate and extend the reader's knowledge and skill in language.[17] Based on the quotations, it can be inferred that when the reader is reading a text, he/she becomes the most important thing in reading activity. Comprehension will make the reader able to determine the essence of the sentence or text and receive the main purpose of reading process. It is necessary for the readers because by comprehension the readers can get the aim of reading text.

In addition, by comprehending the text the students will find the gist of the text such as an important message or information from

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[16]Wadsworth, *Assessment: In Special and Inclusive Education, Eleventh Edition,* (USA: Cengage Learning Press, 2010), p. 196.

[17]Christine Elizabeth Nuttall, *Teaching Reading Skills in a Foreign Language*, (London: Heinemann Educational Books, 1982), p. 234.

the text. As defined by Djuharie, reading comprehension is understanding of written text meaning to get the information which is needed from the text as efficiently as possible.[18] When the students find the difficulties in reading, the teacher should be able to solve this problems.

So, in assessing reading comprehension, there are some indicators. The indicators are students able to:

1) Identify the topic from the text

2) Identify the main ideas from the text

3) Identify information that needed from the text

4) Understand the vocabulary from the text

5) Give conclusion from the text

There are some techniques to test reading comprehension, like; multiple choice, short answer questions, cloze task, fill-in-the-blank, and so on, to measure students' reading comprehension. But, in this research, the researcher choose the multiple choice question.

A multiple choice question test item is usually set out in such a way that candidate is required to select the answer from a number of given options, only one of which is correct. The marking process is totally objective because the marker is not permitted to exercise judgment when marking the candidate's answer, agreement has

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[18]Otong Setiawan Djuharie, *Intensive Reading Bottom-Up Reading*. (Bandung: Yrama Widya, 2008), p. 112.

already been reached as to the correct answer to each item.[19] So, in advantages of multiple choice test are the answer have a clear because just there is one the answer of the question, save a time to correct, and easy to give a score of students based on true or false answer, whereas the disadvantages difficult to make a multiple choice answering and generally students just make a guess to answer the question.

g. Material of Reading Comprehension

There are many materials in teaching reading comprehension. One of them is genre text. So, the English learner can learn or understand of subject matter while reading a passage, listening to a spoken English, and produce it when do speaking or writing activities. There are some kinds of genre text in reading comprehension. They are:

1) Descriptive Text
2) Report Text
3) Narrative Text
4) Recount Text
5) Spoof Text
6) Exposition Text
7) Anecdote Text
8) Discussion Text
9) Explanation Text[20]

Based on the some kinds of genre text above, it is relevant with English lesson syllabus of Indonesian curriculum that places these four activities within it. The book uses in MAN 1 Padangsidimpuan is *Look*

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[19]Cyrill J. Weir, *Communicative Language Testing,* (New York: Prentice Hall, 1990), p. 43.
[20]Otong Setiawan Djuharie, *Genre*, *Dilengkapi 700 Soal Uji Pemahaman,* (Bandung: CV. Yrama Widya, 2007), p. 26.

Ahead Book 2. This book consist of many reading comprehension buildings, such as genre text, they are Report text, Narrative, and Exposition text (Analytical-Hortatory).[21] So, in this research the researcher uses two kinds of genre text and the two kinds that appropriate with material of students' English book in first semester at grade XI of MAN 1 Padangsidimpuan. They are Report text, and Narrative text. There are some examples of material reading comprehension in MAN 1 Padangsidimpuan, they are:

1) Example of Report Text

Read the situation below and choose the best answer for the questions. Sometimes, more than one answer is possible.

It was the first day of the English class and the teacher was introducing himself. He wrote his full name, Allan Jones, on the board and said, "My name is Alan Jones. If you like, you can use 'Mr' with my name. Now I'd like you to tell me your names. Let's start with you," he said, indicating a young girl in the front row.

"My name is Liliana Castro, but you can call me Lily, Teacher."

Then the teacher said, "OK. I'll call you Lily, but please don't call me 'Teacher'. Please call me Alan or Mr. Jones."

Lily looked confused, but the teacher ignored her and continued to ask the students to introduce themselves.

1. What is the topic of text?
   a. Social Behavior
   b. Classroom Behavior
   c. Behavior
   d. Teacher
2. Why did Liliana call Alan Jones 'Teacher'?
   a. She didn't know his name
   b. She was trying to show respect

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[21]Th. M. Sudarwati and Eudia Grace, *Look Ahead Book 2; An English Course for Senior High School Students Year XI*, (Jakarta: Erlangga, 2007), p. 2-154.

c. She couldn't pronounce his name

d. She felt confused

3. Why did Alan Jones ask Liliana not to call him 'Teacher'?

    a. He didn't really like being a teacher

    b. He wanted to be friendly

    c. In his country, only very young pupils call their teacher "Teacher'

    d. He thought Liliana was being rude[22]

2) Example of Narrative Text

Read carefully the following tetx!

The Lion and the Mouse

One, when a lion was asleep, a little mouse began running up and down upon him; this soon awakened the lion, who placed his huge paw upon him, and opened his big jaws to swallow him. "Pardon, O king," cried the little mouse, "Forgive me this time, I shall never forget it; who knows but what I may be able to do you a turn some of these days?"

The lion was so tickled at the idea of the mouse being able to help him, that he lifted up his paw and let him go.

Some time after, the lion was caught in a trap and the hunters, who desired to carry him alive to the king, tied him to a tree while they went in search of a wagon to carry him on.

Just then the little mouse happened to pass by and see the sad plight in which the lion was. He went up to the lion and soon gnawed away the ropes that bound the king of the beasts. "Wasm't I right?", said the little mouse.

Answer the question based on the text you have read!

1) What was the lion doing when the mouse tran up and down upon him?

2) What happened to the lion some time after?

3) What is the message of the story?

4) Who are the main participants of the story?

5) How did he overcome his problem?[23]

Based on the explanations above, reading comprehension is

understanding the meaning of text, and consequence associated with

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[22]*Ibid.,* p. 20.

[23]*Ibid.*, p. 135.

the act of reading, students know that reading comprehension is very important, cause comprehension is the process by which a person understanding the meaning of written or spoken language. In conclusion, reading comprehension is the ability of the reader to understanding of the text and comprehend the meaning of the text.

2. Make a Match Technique

a. Definition of Make a Match Technique

Make a Match is a technique to teach all subject matter by using cards. The cards consist of question and answer form that appropriate with a topic or subject matter in learning process. Make a Match technique was developed by Lorna Curran in 1994s. One of the profits of this technique is the students look for their partner while learning a concept or topic in interesting situation. This technique can be applied in all of the subject matter and grade level.[24] Besides it, Arifah and Kusumarasdyati states that Make a Match is one of the teaching techniques which can be used in cooperative learning. The Make a Match technique is a kind of game where students have to find their partner.[25] In addition, Make a Match technique is interesting technique which used to review the material given before. But, the new material can also be taught in this technique with note, the

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[24]Anita Lie, *Cooperative Learning,* (Jakarta: PT. Grasindo, 2008), p. 55.
[25]Arifah and Kusumarasdyati, The Effectiveness of Make a Match Technique for Teaching Writing Descriptive Text to the Seventh Graders of SMP N 1 Karangbinangun Lamongan, retrieved from *http://www.ejournal.unesa.ac.id/article/3061/58/article/pdf.*, on May 24th, 2017 at 05.30 am.

students given exercise to study the topic that will be taught first, so when enter the class they have had knowledge.[26] From these explanations, it can be concluded that Make a Match technique is a kind of technique to teach reading comprehension that uses cards which contains question and answer card about a topic or material of learning process. This technique can be taught in groups, pairs or in individual activities. Thus, this technique assumes that the students can more active and enjoy to study by using Make a Match technique.

b. The Purpose of Make a Match Technique

The aims of reading comprehension are to get and find information include content and meaning of the text based on the purpose. In teaching reading comprehension, Make a Match technique is considered as one appropriate technique. It can be seen based on the purpose of Make a Match technique.

The are four purposes of Make a Match technique, they are:

1) To help students with cards representation for understanding of subject matter/ material in learning process.
2) To help students have personal association with terms when create a joyful learning and become the class more active.
3) To help increase students' motivation in learning.
4) To help avoid students being bored during the teaching-learning process.[27]

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[26]Asri Pratiwiningsih, The Effectiveness of Make a Match Technique in Teaching Reading Comprehension Report Text at XI Grade SMA Negeri 1 Ngimbang Lamonan, retrieved from *http://www.ejournal.stkipjb.ac.id/index.php/AS/article/download/225/ 161/pdf.*, on October 14th, 2016 at 04.20 pm.

[27]Istarani, *58 Model Pembelajaran Inovatif*, (Medan: Media Persada, 2014), p. 63.

In addition, there are three goals/objectives of Make a Match technique as below:

1) To help students of thinking critically in learning process.
2) To create a students' active and creative.
3) To help students building of their personality to be democratic from interacting with their friends in learning process.[28]

Based on the quotations above, it can be conluded that the purpose of Make a Match technique are to help students with cards representation for understanding of subject matter in learning process, to create a students' active and creative, to help increase students' motivation in learning, for thinking critically, to create joyful learning and become the class more active.

So, this technique requires students to find a material that is not known before, or a word that is not familiar, so it will introduce students with a new knowledge. This technique is also easy in the application to motivate students or activate their interesting, because Make a Match technique is presented with cards and like a game.

c. **The Procedures of Make a Match Technique**

Technique is a way of teaching a language which is based on systematic principle and procedure.[29] Many teacher used technique when they teach. One of them is Make a Match technique. Make a

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[28]Agus Suprijono, *Cooperative Learning, Teori dan Aplikasi PAIKEM,* (Yogyakarta: Pustaka Pelajar, 2012), p. 5.

[29]H. Douglas Brown, *Teaching by Principle: An Interactive Approach to Language Pedagogy,* (USA: Prentice Hall Inc, 1994), p.126.

Match is technique of teaching and learning technique to find partner while learning a topic or material. When a teacher want to apply Make a Match technique, they should use systematic procedure that suitable with the technique.

There are some produres of Make a Match technique, they are:

1) The teacher provides some cards that contains of topics is that match with review session or prepare to final examination.
2) Each of students will be given a card.
3) Each of students looking for a match that suitable with his/her card. Example: SBY match with the students got PRESIDEN RI card.
4) The students join with his/her friends that get a suitable card.[30]

In addition, Hanafiah says that the procedure of Make a Match technique as below:

1) Teacher set up some cards that contain some concept of review session, otherwise the part of card about question and the card other answer.
2) Each student receives a one card hand
3) Each student think of an answer or a question of card held.
4) Each students seeking a partner who has a card that matches the card (about the answer).
5) Any the student who can match his/her card before the deadline given points.
6) After one round of cards, shuffled again, so each students get a different card than before.
7) So forth.
8) Conclusion or closing.[31]

It is important to know that do not all students of both for personating of handle of questions and answer card know and

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[30]Miftahul Huda, *Cooperative Learning,* (Yogyakarta: Pustaka Pelajar, 2012), p. 135

[31]Nanang Hanafiah, *Konsep Strategi Pembelajaran*, (Bandung: PT. Refika Aditama, 2009), p. 46.

comprehend surely whether what correct of card which they pair have compatible. Based on this condition, teacher should to facilitate the students' activities in learning process and to give the opportunity to all of students to confirm which they have done that is pair the questions-answer cards. In other words, teacher should evaluate result from all of the students task and give the conclusion.[32] Based on the quotations, there are some procedures of applying Make a Match in the classroom. So, it can be concluded that the procedures of Make a Match technique they are:

1) The teacher provides some cards that contains of some topics is that match with the subject matter of English in the classroom.

2) Each students receives a text.

3) Each student receives a one card hand.

4) Each student think of an answer or a question of card held.

5) Each students seeking a partner who has a card that matches the card (about the answer).

6) Any the student who can match his/her card before the deadline given points.

7) After one round of cards, shuffled again, so each students get a different card than before. So forth.

8) Conclusion or closing.

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[32]Agus Suprijono, *Op.Cit.,* p. 96.

The procedures must be applied by teacher step by step to reach the good final result. The procedure is not difficult to be applied, so the learning process will be fun and enjoying.

d. The Advantages and Disadvantages of Make a Match Technique

Istarani suggests that if a teacher wants to teach the students using the Make a Match technique, he/she should prepare some cards, each with a question realted to a topic or material and some other cards each one with an answer to one of the questions. Istarani adds that the Make a Match technique has several advantages and disadvantages.[33]

The advantages of Make a Match technique as follow:

1) It can increase student's learning activity for their cognitive and physic.
2) It can create a joyful learning because it is like a game.
3) It can increase student's comprehension about the material, because the materials of teaching are easy.
4) It can increase student's motivation in learning.
5) It can increase the students' creativity through matching the cards.
6) It can help avoid students being bored during the teaching learning process.
7) All of students in the class more active.[34]

In addition, Ibrahim and Muslimin say that the advantages of Make a Match technique as follow:

1) Teacher can motivate and encourage their students to be more interested and enthusiastic in learning English.
2) It can increase students' concentrate and participate more actively in the class.
3) The students will not feel so bored nor be afraid of making a mistake in pronoucing a word or sentences.

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[33]Istarani, *Op.Cit.,* p. 64.
[34]*Ibid.,* p. 65.

4) Delivered learning materials more attrative for students.
5) Cooperation among the students realized the dynamic.[35]

Based on the quotations above, the advantages of Make a Match technique are can increase students' learning activity for their cognitive and physic, can create a joyful learning and the students will not feel so bored or be afraid of making a mistake in pronouncing a word or sentence, can increase students' comprehension about the material because the material of teaching become easy, and all of students in the class more active.

Besides that, there are some disadvantages of Make a Match technique, they are:

1) Each students have a different ability, so they cannot deliver their ideas fluently.
2) The situation of this class is noisy.[36]

As the additional, Ibrahim and Muslimin say that the disadvantages of Make a Match as follow:

1) Deeded guidance for the teachers to do activities.
2) Limited time available to students do not get to much play in the learning process.
3) Teacher need to prepare adequate materials and equipment.[37]

From combining explanations above, it can be concluded that there are four the disadvantages of Make a Match technique, they are: the situation of the class is noisy, deeded guidance for the teachers to

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[35]Ibrahim and Muslimin, *Pembelajaran Kooperatif,* (Surabaya: Unesa-University Press, 2000), p. 4.
[36]Istarani, *Op.Cit.,* p. 66.
[37]Ibrahim and Muslimin, *Op.Cit.,* p. 5.

do activities, limited time available to students do not get to much play in the learning process, and the teacher need to prepare adequate materials and equipment.

So, related to the advantages and disadvantages above, there were some advantages when a teacher used Make a Match technique in their teaching activities. It was gave for strong reason to teacher used this technique to teach reading comprehension. So, Make a Match is a kind of technique that computable to be used in English classroom.

3. **Conventional Technique**

   a. **Definition of Conventional Technique**

   Conventional technique is needed to compare it with treatment. Here is Make a Match technique. Conventional technique is the technique or the way that usually used by the teachers to teach the text to students.[38] Hudson states that "conventional teaching is a technique that used by the teachers based mutual agreement in a school.[39] From those definitions, it can be defined that the Coventional teaching technique is a way that usually used by teachers to teach the material to students based mutual agreement in a school. Conventional also means something that considered acceptable by society and perhaps

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[38]Jhon Deriden, Conventional Technique, retrieved from *http://www.britania.com/Ebchecked/topic/421797/nnucler-strategy/52993/conventional-strategy,* on December 24th, 2016 at 10.00 p.m.

[39]Hudson, The Meaning of Conventional Teaching *(Online),* retrieved from *http://www.conventional-strategy/topic/54372-strategy.,* on October, 02nd 2016 at 11.30 am.

not very interesting. The teacher will use traditional way in teaching and learning. Conventional or traditional teaching is concerned with the teacher being the controller of the learning environment. The teacher actually is the leader in the class. So, conventional technique is the technique used by teacher in common ways or lecture technique.

b. The Purpose of Conventional Technique

Conventional technique is the technique or the way that usually used by the teachers to teach the material or text to students. It means that the teacher usually gives all of the explanation of the materials or it is a teacher centered in classroom.

There are two purposes of Conventional (Lecture) technique, they are:

1) To convey a subject matter is logically arranged, and irrelevant material or subject matter is avoided.
2) As the curriculum is design by the teacher, it become easy to achieve the desired goals by teacher.[40]

The two purposes above is the first importance in lecture technique or teacher-centered. In this technique, the teacher is centered in learning process. This technique requires students to find a subject matter through a teacher.

In addition, Gattegno says that there are three purposes of Conventional (Lecture) technique, they are:

1) To convey the information or material in teaching learning process.

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[40]*Ibid.,* retrieved on October, 02nd 2016.

2) To increase the students' knowledge and language from teaching learning process in classroom.

3) To explain the subject matter or material based on design by teacher in clearly.[41]

Based on the quotations above, it can concluded that the purpose of Conventional technique are to convey a subject matter is logically arranged, and avoided irrelevant material in learning process, to achieve the desired goals based on curriculum is design by teacher, to increase the students' knowledge and language from explaining by teacher or teaching learning process in classrom. The Conventional or Lecture teaching technique is the oldest (traditional) teaching technique applied in educational Institution. This teaching technique is one way to communicate the information or subject matter by teacher with lecturing in teaching learning process.

c. **The Procedures of Conventional Technique**

There are many technique that we can used in teaching and learning process. One of them is conventional or traditional technique. Conventional technique can be divided into some technique, such as: lecture technique, problem solving, homework, recitation, demonstration, and so on.[42] So, there is a technique that is often used by the teacher, such as lecture technique or teacher-centered. It is a traditional technique because it has been used for a long time in

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[41]Caleb Gattegno, *Teaching Foreign Languages in Schools,* (New York: Educational Solutions, 1972), p. 136.

[42]Syaiful Bahri Djamarah, *Strategy Belajar-Mengajar,* (Jakarta: PT. Asdi Mahasatya, 2006), p. 83-97.

teaching and learning process. In this technique, the teacher usually gives all of the explanation of the materials or it is a teacher centered. This traditional technique sometimes will make the students be easier to feel bored and difficult to understand the material in learning process.

There are some procedures of Conventional (Lecture) technique, they are:

1) Preparation Phase
   a. Created the students' learn condition
2) Implementing Phase
   a. Presentation; teacher explains the material.
   b. Association; teacher give a time/ chance for students to respond, connecting and comparing the material that taught with question-answer section.
   c. Generalization/ conclusion; give a task for students to make conclusion based on the material that have been explained by the teacher.
3) Closing (Evaluating) Phase
   a. Evaluate for students' comprehension about the material that have been learned.[43]

In another source, said that there are three steps that procedure of Conventional (Lecture) technique classroom, they are:

1) Opening Phase
   a. Formulate goals to be achieved.
   b. Determine the main points of the material to be explain.
   c. Prepare tools.
2) Presentation Phase
   a. Maintain continuous eye contact with students.
   b. Present learning materials in systematic, no bounding to be easily captured by the students.
   c. Respond to immediate students reponses.
   d. Keep the class conducive and exciting to learn.

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[43]*Ibid.,* 99.

3) Closing Phase
    a.   Giving conclusion of subject matter
    b.   Evaluate the students' ability in learning process by given a test based on the subject matter that have been learned.[44]

Based on the explanations above, there are three steps procedure of Conventional (Lecture) technique, they are: Preparation/ Opening phase, Implementing Phase, and Closing (Evaluating) Phase. The first, in preparation phase a teacher open the class with formulate the objectives to be achieved, determine the main points of the material will be explain, and preparing tool and class condition. The second, in implementing phase a teacher gives and explain the material. The third, in ending or closing phase a teacher gives a task or exercise for evaluating the students' comprehension or ability about the material that have been learned by the teacher.

d. The Advantages and Disadvantages of Conventional Technique

Conventional or traditional teaching is concerned with the teacher being the controller of the learning environment. The teacher actually is the leader in the class. Actually, using conventional (Lecture) technique are many advantages and disadvantages in teaching and learning process.

The advantages of Conventional (Lecture) technique as follow:

1) In short time, teacher is able to convey the material as many as possible.

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[44]Umar Farooq, The Procedures of Teaching Lecture Technique, retrieved from *http://www.study lecturenotes.com /social- education/382-lecture-method-of-teaching-definiton-steps-html.*, retrieved on April, 27th 2017 at 09.05 am.

2) The organization of class more simple.
3) Teacher an handle overall of the class.
4) Teacher easy in prepare the material and convey it to the student.[45]

In addition, Thihanh Pham says that the advantages of Conventional or Lecture technique are:

1) Teachers feel comfortable and confident in the classroom activities.
2) It become easy to achieve the desired goals as the curriculum is design by the teacher.
3) Subject matter or material is logically arranged. Irrelevant material or subject matter is avoided.
4) Democracy is encouraged.[46]

Based on the quotations above, the Conventional (Lecture) technique had many advantages in teaching learning process. The advantages of Conventional (Lecture) technique were; teacher was able to convey the material as many as possible in short time, the organizations of class more simple, teacher easy to prepared the material, to achieved the desired goals as the curriculum is design by the teacher become easy.

The disadvantages of Conventional (Lecture) technique as follow:

1) Teacher is difficult to know the students' comprehension about the material that had been given.
2) This technique can make the students become passive students.
3) This technique can make the students easy to feel bored.[47]

[45]Syaiful Bahri Djamarah, *Op.Cit.,* p. 97.
[46]Thihanh Pham, *Learners' and Teachers' Preference for Classroom Activities,* (Colchester: Essex University Press, 2005), p. 136.
[47]Syaiful Bahri Djamarah, *Op.Cit.,* p. 97-98.

In another source, said that the disadvantages of Conventional or Lecture technique as follow:

1) Language using in the teacher is above the standard of the students. They are not able get full advantage of the teacher.
2) Attention level is not the same while student listening the teacher.
3) Lack sources and resources.
4) It will become difficult to maintain a common standared in various institutions.
5) The existing curriculum for teaching training institutions is not suitable for the teacher centered approach.
6) It is very difficult for a student to sit for a long time and listen to a teacher drone on about a topic or material in learning process. So, the condition of class is noisy.[48]

If combine both of expert opinion, there are six the disadvantages of Conventional (Lecture) technique. They are teacher is difficult to know the students' comprehension about the material that had been given, this technique can make the students become passive students, easy to feel bored, language used by the teacher has above the standard of students, lack sources and resources, attention level is not same while students listening the teacher.

B. Review of Related Findings

Many researcher were talking about students' reading comprehension and there were some researches that have been used Make a Match Technique. Related to this research, some researches had been done as follow:

First, Sri Wahyuni, the concluding of her research, there was the effect of Make a Match technique on students' reading comprehension, where the

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[48]Thihanh Pham, *Op.Cit.,* p. 137.

mean score of experimental class is 74.67 and control class is 64.40 with t_{count} higher than t_{table} (3.002 > 2.000).[49] So, the application of Make a Match technique is better, effective and efficient than conventional technique.

Second, Asri Pratiwiningsih, the concluding of her research, there is effect of Make a Match Technique in Teaching Reading Comprehension Report Text, where the mean score of experimental class 74.25 and control class 68.97 with t_{count} higher than t_{table} (2.787 > 2.021). So, the implication of Make a Match technique is better achievement in teaching reading comprehension than conventional technique.[50] It meant that the hypothesis alternative (H_a) was accepted.

Third, Sri Alvera Ayu, the concluding of her research, there was the effect of Make a Match technique on students' reading comprehension, where the mean score of experimental class is 74.38 and control class is 66.64 with t_{count} higher than t_{table} (2.618 > 2.021).[51] So, the implication of Make a Match technique is better achievement in teaching reading comprehension than conventional technique.

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[49]Sri Wahyuni, The Effectiveness of Using Make a Match Technique in Teaching Reading Comprehension to the First Grade Students of SMP Negeri 2 Sulang, Rembang, retrived from *http://www.lib.unnes.ac.id.,* on October 28th, 2017 at 10.00 a.m.

[50]Asri Pratiwiningsih, The Effectiveness of Make a Match Technique in Teaching Reading Comprehension Report Text at XI Grade SMA Negeri 1 Ngimbang Lamonan, retrived from *http://www.ejournal.stkipjb.ac.id/index.php/AS/article/download/225/161/pdf.,* on October 14th, 2016 at 04.20 p.m.

[51]Sri Alvera Ayu, The Effect of Using Make a Match Technique on Students' Reading Comprehension of Recount Text at the Tenth Grade SMA Xaverius 2 Jambi, retrived from *http://www.ejournal.unja.ac.id.,* on October 28th, 2017 at 10.50 a.m.

Based on descriptions above, the researcher hopes the Make a Match Technique can increase the students' reading comprehension and can complete the previous research. So, the researcher wants to research about "The Effect of Make a Match Technique on Students' Reading Comprehension at XI Grade of MAN 1 Padangsidimpuan".

C. Framework of Thinking

Technique in teaching reading comprehension is the important thing must be considered by the teacher to succeed the learning reading comprehension. The teacher must choose the suitable technique for the students, so they are not easy to feel bored when following the reading comprehension lesson. For Senior High School's students, the teacher can choose the technique which does not only ask them to learn but also they can play. By mixing learning and playing, the students will be more enthusiasm in learning reading comprehension.

Make a Match is one of the technique that can be applied in teaching reading comprehension. By using Make a Match technique will make the students easier to get information from the text. They will be divided into two groups, pairs, or in individually. So, they can enjoy and share their knowledge about the concept or subject matter to each other. Thus, the researcher assumed that with using of good technique students can understand about the text easily and quickly. So, the researcher conducts a research based on the framework as below:

```
┌─────────────────────────────────────────────────────────┐
│   The students are difficult to comprehend the text,     │
│   easy to feel bored and also did not know the           │
│   technique reading comprehension when they are reading  │
└─────────────────────────────────────────────────────────┘
                            │
              ┌──────────────────────────────┐
              │    Make a Match Technique     │
              └──────────────────────────────┘
                            │
                     ┌─────────────┐
                     │  Pre-test   │
                     └─────────────┘
              ┌──────────────┴──────────────┐
              ▼                              ▼
   ┌────────────────────┐        ┌────────────────────┐
   │ Experimental class │        │  Control class with│
   │ with Make a Match  │        │    Conventional    │
   │     Technique      │        │     Technique      │
   └────────────────────┘        └────────────────────┘
              ▲                              ▲
              └──────────────┬──────────────┘
                     ┌─────────────┐
                     │  Post-test  │
                     └─────────────┘
                     ┌─────────────┐
                     │ Hypothesis  │
                     └─────────────┘
              ┌──────────────┴──────────────┐
   ┌────────────────────┐        ┌────────────────────┐
   │   Hₐ = Accepted     │        │   H₀ = Rejected    │
   └────────────────────┘        └────────────────────┘
```
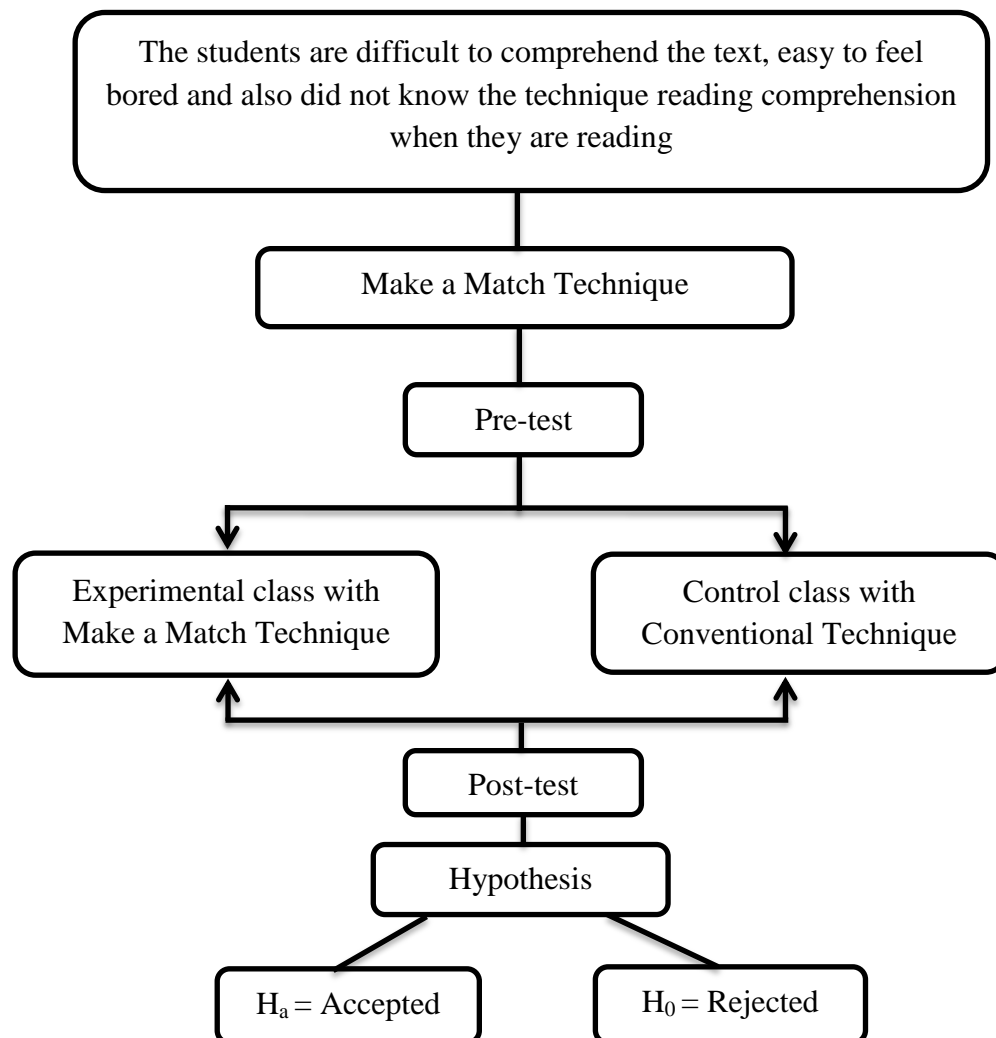
D. Hypothesis

The hypothesis has purpose to answer a certain specific question. Based on formulation of the problem above. L.R. Gay says that a hypothesis is a tentative prediction result of the research findings.[52] While, Suharsimi Arikunto states that hypothesis is a provisional answer of result problem in a

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[52]L.R. Gay and Peter Airasian, *Educational Research: Competencies for Analysis and Application,* (America: Prentice Hall, 2000), p. 71.

research.[53] So, it can be concludes that hypothesis is provisional answer of prediction result in a research. The hypothesis of this research are:

1. There is the significant effect of Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan (H_a).

2. There is no the significant effect of Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan (H_0).

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[53]Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik,* (Jakarta: PT. Rineka Cipta, 2006), p.110.

CHAPTER III

RESEARCH METHODOLOGY

A. The Place and Time of the Research

The research was done at MAN 1 Padangsidimpuan. It is located on Sutan Soripada Mulia Street, No. 31 C Padangsidimpuan Utara.

Then, The time of the research was from October 03rd, 2016 until September 25th, 2017.

B. The Research Design

The kind of this research was quantitative research with experimental method. Experimental research is the type of research that can test hypotheses to establish cause and effect relationships.[1] It meant that the experimental research has purpose to find out the significant effect of a treatment on dependent variable. Dependent variable here was reading comprehension and the treatment is Make a Match technique.

The researcher used two classes in this research. One of the class was taught with Make a match technique and called as Experimental class. Meanwhile the other class was not (be taught with conventional technique) and called as Control class. It was done to know the effect of using treatment in experimental class.

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[1]L.R Gay and Peter Airasian, *Educational Research: Competencies for Analysis and Application,* (America: Prentice Hall, 2000), p. 367.

Based on using control and experimental class, the research design that was used 'true experimental design'. The design which used was Pretest-Posttest Control Group Design. It meant there were two classes chosen randomly, then gave pre-test to know the basic condition of the two classes. Next, after teaching reading comprehension with different implementation, the both of classess were given post test. The result of the test was compared to know the different effect of treatment to experimental class. The research design of this research can be seen in the following table:

Table 1. Research Design
(Pretest-Posttest Control Group Design)

R	O_1	X	O_2
R	O_3		O_4

Where:
    R = The sample of the research
    O_1 = Pretest in experimental class
    O_2 = Posttest in experimental class
    X = Treatment
    O_3 = Pretest in control class
    O_4 = Posttest in control class[2]

C. The Population and Sample

1. Population

    Gay and Airasian stated that population is the group of interest to the researcher, the group to which she or he would like the results of the study to be generalizable. Generalizability is the extent to which the result

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[2]Sugiyono, *Metode Penelitian Pendidikan; Pendekatan Kuantitatif, Kualitatif, dan R&D*, (Bandung: Alfabeta, 2008), p. 112-113.

of the study can be applied to other populations or situations.[3] In addition,

population is the universe of people to which the study could be

generalized.[4] It meant that the population of this research was all of the XI

MIA class of MAN 1 Padangsidimpuan. It consisted of 8 classes with

students. It can be seen in the following table:

**Table 2. The Population of the grade XI MIA students
of MAN 1 Padangsidimpuan**

No.	Class	Students
1	XI MIA 1	40
2	XI MIA 2	42
3	XI MIA 3	40
4	XI MIA 4	40
5	XI MIA 5	42
6	XI MIA 6	40
7	XI MIA 7	42
8	XI MIA 8	42
Total		**328**

Sources: Total of students at XI MIA Grade of MAN 1
Padangsidimpuan T.A 2017-2018

2. Sample

Sample is representative whole of population. According to Gay

and Airasian, a sample comprises the individuals, items or events selected

from a larger group referred to as a population.[5] In addition, sample is the

subset of people from the population who will participate in the current

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[3]L.R Gay and Peter Airasian, *Op.Cit.,* p. 122.
[4]Scott W. Vanderstoep and Deirdre D. Johnston, *Research Methods for Everyday Life: Blending Qualitative and Quantitative Approaches,* (San Fransisco: Jossey Bass, 2009), p. 26.
[5]L.R Gay and Peter Airasian, *Op.Cit.,* p. 121.

study.[6] So, it can be concluded that sample was the representation and image of the population.

In this research, the researcher chose two classes as a sample. They were divided into experimental class and control class. To take the representative sample from the populations, researcher used simple random sampling. As explained in research design that in Pretest-Posttest Control Group Design, the researcher took the sample randomly. Sugiyono said that simple random sampling is a technique to take sample from the population that is done randomly without paying attention to the strata in the population. This way is done when the members of population is homogenous.[7] To know the homogeneity of the samples, researcher did homogeneity and normality test.

In this research, the researcher used simple random sampling. Before use simple random sampling, the researcher used normality and homogeneity test, as follow:

a. Normality test

Normality test used to know whether the data of research is normal or not. The researcher used normality test with using *Chi-Quadrate*, as follow:

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

[6]Scott W. Vanderstoep and Deirdre D. Johnston, *Op.Cit.,* p. 26.
[7]Sugiyono, *Op.Cit.,* p. 120.

Where:

x^2	= Chi-Quadrate	
f_0	= Frequency is gotten from the sample/result of observation (questioner)	
f_h	= Frequency is gotten from the sample as image from frequency is hoped from the population[8]	

To calculate the result of Chi-Quadrate, it was used significant level 5% (0,05) and degree of freedom as big as total of interval class is lessened 1 (df=k-1). If result $x^2{}_{count} <$ $x^2{}_{table}$. So, it can be concluded that data is distributed normal.

b. Homogeneity test

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

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

Where:
n_1 = Total of the data that bigger variant
n_2 = Total of the data that smaller variant[9]

Hypothesis is rejected if $F \leq F \frac{1}{2} a(n_1\text{-}1) (1\text{=}n_2\text{-}1)$, while if $F_{count} > F_{table}$ hypothesis is accepted. It determined with

[8]Anas Sudjiono, *Pengantar Statistik Pendidikan*, (Jakarta: PT. Raja Grafindo Persada, 1995), p. 353.

[9]Sugiyono, *Op.Cit.,* p. 275.

significant level 5% (0.05) and dk numerator was (n_1-1), while dk deminators is (n_2-1).

Based on the explanation above, the researcher had given pre-test to three classes (XI MIA 2, XI MIA 3, and XI MIA 4), to know whether the samples are homogenous and normal or not. After calculating the data, the researcher had found that the three classes were homogenous and normal (see appendix 17 and 18). So, the researcher chose two classes as the sample. These two classes had same total of students. They were XI MIA 3 and XI MIA 4. The both classes consisted of 40 students. Here was the sample:

Table 3. Sample of the Research

Sample	Class	Total
Experimental Class	XI MIA 3	40
Control Class	XI MIA 4	40
Total		**80**

D. The Definition of Operational Variables

The terms were used in this research were as follow:

1. Reading Comprehension

Reading comprehension is a process in which the readers try to understand the meaning in the text by interpreting what have been read in order to find the information or idea given by the writer.

2. Make a Match Technique

       Make a Match technique is a teacher's way to teach subject matter that use cards which contains question and answer form with suitable topic in teaching learning process.

E. The Instrument of Collecting Data

       Instrument is very important to support every research. This research makes test as the instrument to collect the data of students' reading comprehension. The researcher used multiple choice test. According to Brown, multiple choice items, "which may on the surface appear to be simple items to construct"[10] It meant that multiple choice test is suitable to test reading comprehension. In this research the test consisted of 100 questions, which consisted of 50 questions for Pre test and 50 questions for Post test. The test gave for each student to find out the scores of each students answer. The researcher gave 2 scores for each items and maximum score of test was 100. Here was the indicators of the instrument:

Table 4. The Indicators of Reading Comprehension Pre-Test

No	Indicators	Items	Number of Items	Score	Total Score
1	Students are able to identify the topic from the text	3	1, 21, 35	2	6
2	Students are able to identify main idea from the text	5	4, 15, 23, 38, 46	2	10

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[10]H. Douglas Brown, *Language Assessment Practical and Language Practice*, (San Francisco: Longman, 2003), p. 67.

No	Indicators	Items	Number of Items	Score	Total Score
3	Students are able to identify information that needed	20	2, 6, 7, 10, 12, 14, 18, 20, 25, 26, 27, 30, 32, 34, 37, 41, 42, 44, 47, 50	2	40
4	Students are able to identify vocabulary from the text	19	3, 5, 8, 9, 11, 13, 17, 19, 22, 24, 28, 29, 31, 36, 39, 40, 43, 45, 49	2	38
5	Students are able to identify conclusion from the text	3	16, 33, 48	2	6
Total					**100**

Table 5. The Indicators of Reading Comprehension Post-Test

No	Indicators	Items	Number of Items	Score	Total Score
1	Students are able to identify the topic from the text	3	1, 18, 33	2	6
2	Students are able to identify main idea from the text	5	2, 11, 27, 41,46	2	10
3	Students are able to identify information that needed	20	4, 6, 7, 8, 9, 12, 14, 20, 22, 25, 26, 28, 30, 37, 38, 40, 42, 45, 48, 49	2	40
4	Students are able to identify vocabulary from the text	19	3, 5, 10, 13, 16, 17, 19, 21, 23, 24, 29, 32, 34, 35, 36, 39, 43, 44, 47	2	38
5	Students are able to identify conclusion from the text	3	15, 31, 50	2	6
Total					**100**

F. The Validity and Reliability of Instrument

1. Validity of Instrument

Validity is the most important quality of a test. It is the degree to which a test measures what it is supposed to measure and consequently permits appropriate interpretations of the test. Scott and Deirdre stated that a measure shows validity if it actually measures what it claims or intended to measure.[11] Validity also concerns the extent to which the uses that are made of assessment are appropriate. So, in testing students' reading comprehension, the instrument must be valid.

This research used item validity. Item validity is a part of the test as a totality to measure the test by items. The kind of test is multiple choice test. The test consist of 140 items that was divided into two groups. They were 70 for pre-test and 70 for post-test.

To know the validity of the each question, it refered to list r biserial with r in *5% significant*: 0.413 and 1% significant: 0.526. So, if $r_{count} > r_{table}$ the test is classified valid.

So, to get the validity of test, the formula of r pointbiserial used was 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 of the total score of the students answer correctly
M_t = Mean score of the total score that achieved success by member of the test

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[11]Scott W. Vanderstoep and Deirdre D. Johnston, *Op.Cit.,* p. 59.

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[12]

Based on the calculation result of the validity test for pre test, 57 items were valid, and 13 items was invalid. Meanwhile, from the post test validity the researcher got 54 items with result valid, and there were 16 invalid items. From the both, the researcher took 50 items each for pre test and post test. (See appendix 8 and 11).

2. Reliability of Instrument

Besides validity, reliability of instrument is also very important in a research. An instrument of the research must be reliable. Reliability is the degree to which a test consistently measures whatever it measures. Reliability is express numerically, usually as a coefficient ranging from 0.0 to 1.0; a high coefficient ranging indicates high reliability.[13]

To get reliability of the test, the researcher used K-R.20 formula. The formula was as follow:

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

Where:
R_{11} = Reliability of the instrument
k = Total of question
S_t = Variants total
$\sum_{pq}$ = Total of the result times p and q
p = Proportion of subject who is right answer

[12]Hartono, *Statistik Untuk Penelitian*, (Yogyakarta: Pustaka Pelajar , 2004), p. 113.
[13]L.R. Gay and Peter Airasian, *Op.Cit.,* p. 155.

q   = Proportion of subject who is wrong answer[14]

Reliability is 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 K-R. 20 with r_{table} 0.70. (See appendix 13 and 15).

G. The Procedures of Research

In collecting data the researcher used to test for students. The kind of the test was multiple choice test. The test divided into two kind; pre-test and post test. The procedures as bellow:

1. Pre-test

It was a test that gave before doing the treatment to the students. It was needed to know the students' ability in experiment and control class before the researcher gave the treatment to experiment class. It was also used to find out the homogenity and normality level of the sample. The researcher used some steps in giving pre-test. They were:

a. Prepared 50 items of the multiple choice test.

b. Distributed the test paper to both of classes; experiment and control class.

c. Explained what the students need to do.

d. Gave the time to the students to answer the questions.

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

e. Collected the students' test paper.

f. Checked the answer of students and counts the students' score.

2. Treatment

After giving the pre-test, the students gave the treatment. The experimental class taught by using Make a Match technique, while the control class taught by conventional strategy. The researcher had some procedure in treatment class. They were:

a. For the beginning, researcher started the learning activity with greeting. Then, asked students to take a pray. Next, explained the indicators and gave them motivation.

b. Gave the text to students.

c. Announced the rules in Make a match technique.

d. Gave the cards which contains of material about texts. Then, asksed each of students to take one card for one person/ student to act out.

e. Each students reading the text and think of an answer or question of card held.

f. Each of students act out to match that suitable with his/her card.

g. The students join with his/her friends that get a suitable card. Then, each of students can checking for what is their answer the question in card is matching or not.

h. If their guessing is correct and before time is over, then they got score a point.

i. Made summaries or conclusion about important information from the text and the lesson.

3. Post-test

After giving treatment, the researcher conducted a post-test. It was different test with the pre-test. This post-test was the final test in the research, especially measuring the treatment, whether was an effect or not of Make a match technique on students' reading comprehension. After conducting the post-test, the researcher analyzed the data. The researcher had some procedure. They were:

a. Prepared multiple choice test 50 items.

b. Distributed the paper of the test to students of experimental class and control class.

c. Explained what the students need to do.

d. Gave the time to the students to answer the questions.

e. Collected the students' test paper.

f. Checked the answer of students and counts the students' score.

H. The Technique of Analyzing Data

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

1. Requirement test

   a. Normality Test

      To know the normality, the researcher used *Chi-Quadrate*

      formula. The formula is as follow:

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

      Where:
x^2	= Chi-Quadrate
f_0	= Frequency is gotten from the sample/result of observation (questioner)
f_h	= Frequency is gotten from the sample as image from frequency is hoped from the population[15]

   b. Homogeneity Test

      To find the homogeneity, the researcher used *Harley test*.

      The formula is as follow:

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

      Where:
      n_1 = Total of the data that bigger variant
      n_2 = Total of the data that smaller variant[16]

      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

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[15] Anas Sudjiono, *Op.Cit.,* p. 353.
[16] Sugiyono, *Op.Cit.,* p. 276.

significant level 5% (0.05) and dk numerator was (n_1-1), while dk deminators is (n_2-1).

2. Hypothesis test

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

$$Tt = \frac{M_1 - M_2}{\sqrt{\left(\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where:
Tt	= t-test
M_1	= The mean score of the experimental class
M_2	= The mean score of the control class
n_1^2	= Total number of the experimental class
n_2^2	= Total number of the control class
S_1^2	= Variant of experimental class
S_2^2	= Variant of control class[17]

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[17]*Ibid.*, p. 273.

CHAPTER IV

THE RESEARCH RESULT

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

A. Description of Data

1. Description of Data before Using Make a Match Technique

a. Score of Pre-test Experimental Class

As the experimental class, the researcher took class XI MIA 3. Based on students' answers in pre-test the researcher has calculated the students' score in appendix 17 and 18. Then, the researcher drawn the table sum in the following:

Table 6. The Score of Experimental Class in Pre-test

Total	2542
Highest score	84
Lowest score	32
Mean	64.13
Median	64.73
Modus	64.22
Range	52
Interval	9
Standard deviation	12.11
Variant	138.36

Based on the table above, the total score of experimental class in pre-test was 2542, mean was 64.13, median was 64.73, modus was 64.22, range was 52, interval was 9, standard deviation was 12.11, and variant was 138.36. The researcher got the highest score was 84 and the lowest score was 32. Then, the calculation of the frequency distribution of the students' score in experimental class can be applied into table frequency distribution as follow:

Table 7. Frequency Distribution of Experimental Class (Pre-test)

No	Interval	Mid Point	F	Percentages
1	32 – 40	36	2	5%
2	41 – 49	45	3	7.5%
3	50 – 58	54	6	15%
4	59 – 67	63	13	32.5%
5	68 – 76	72	9	22.5%
6	77 – 85	81	7	17.5%
	i=9	-	40	100%

From the table above, it can be concluded that the most students are in interval 59–67 (13 students/32.5%). The least of students is 32-40 (2 students/5%). Clear description of the data is presented in histogram on the following figure:
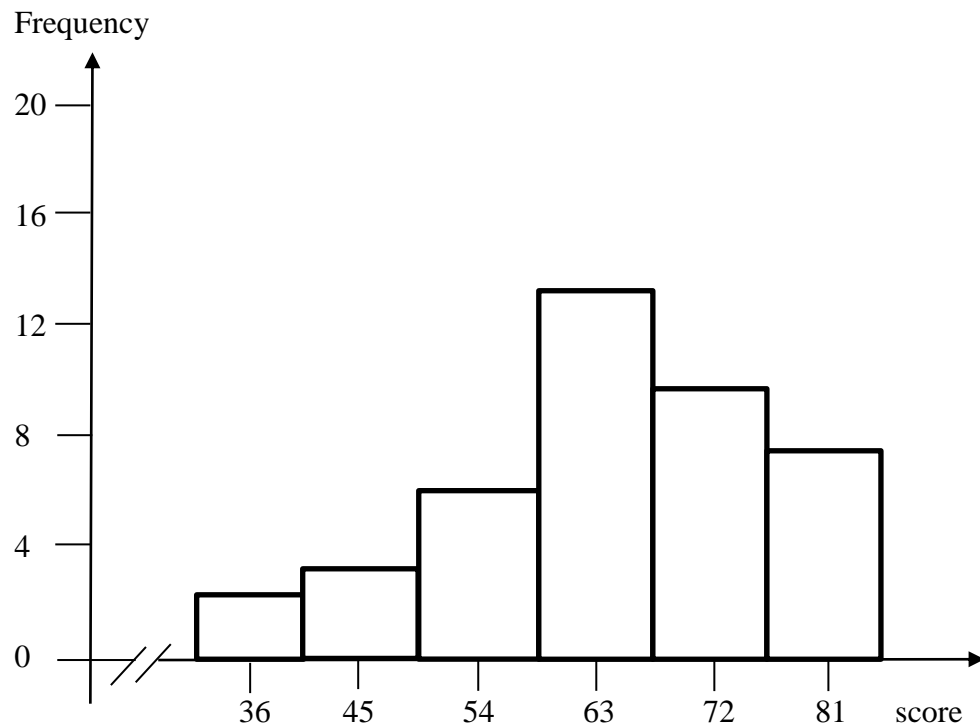
Frequency

Figure 1. Histogram the Result Score of Students' Reading
Comprehension in Experimental Class (Pre-test)

Based on the figure above, the frequency of students' score from

32 up to 40 was 2; 41 up to 49 was 3; 50 up to 58 was 6; 59 up to 67 was

13; 68 up to 76 was 9; 77 up to 85 was 7. The histogram shows that the

highest interval (77-85) was 7 students, and the lowest interval (32-40)

was 2 students.

b. Score of Pre-Test Control Class

In pre-test of control class, the researcher calculated the result that

had been gotten by the students in answering multiple choice test. The

score of pre-test control class can be seen in the following table:

Table 8. The Score of Control Class in Pre-Test

Total	2480
Highest score	82
Lowest score	30
Mean	62.13
Median	62.73
Modus	62.22
Range	52
Interval	9
Standard deviation	12.16
Variant	153.44

Based on the table above, the total score of control class in pre-test was 2480, mean was 62.13, median was 62.73, and modus was 62.22, range was 52, interval was 9, standard deviation was 12.16, and variant was 153.44. The researcher got the highest score was 82 and the lowest score was 30. It can be seen on appendix 17. Then, the calculation of the frequency distribution of the students' score in control class can be applied into table frequency distribution as follow:

Table 9. Frequency Distribution of Control Class (Pre-Test)

No	Interval	Mid Point	Frequency	Percentages
1	30 – 38	34	2	5%
2	39 – 47	43	3	7.5%
3	48 – 56	52	6	15%
4	57 – 65	61	13	32.5%
5	66 – 74	70	9	22.5%
6	75 – 83	79	7	17.5%
	$i = 9$	-	40	100%

From the table above, it can be concluded that the middle interval (57–65) had the biggest frequency (13 students/32.5%). The highest

interval (75–83) had 7 students and the lowest interval was (30 – 38) with

2 students.

In order to get description of the data clearly and completely, the

researcher presents them in histogram on the following figure:
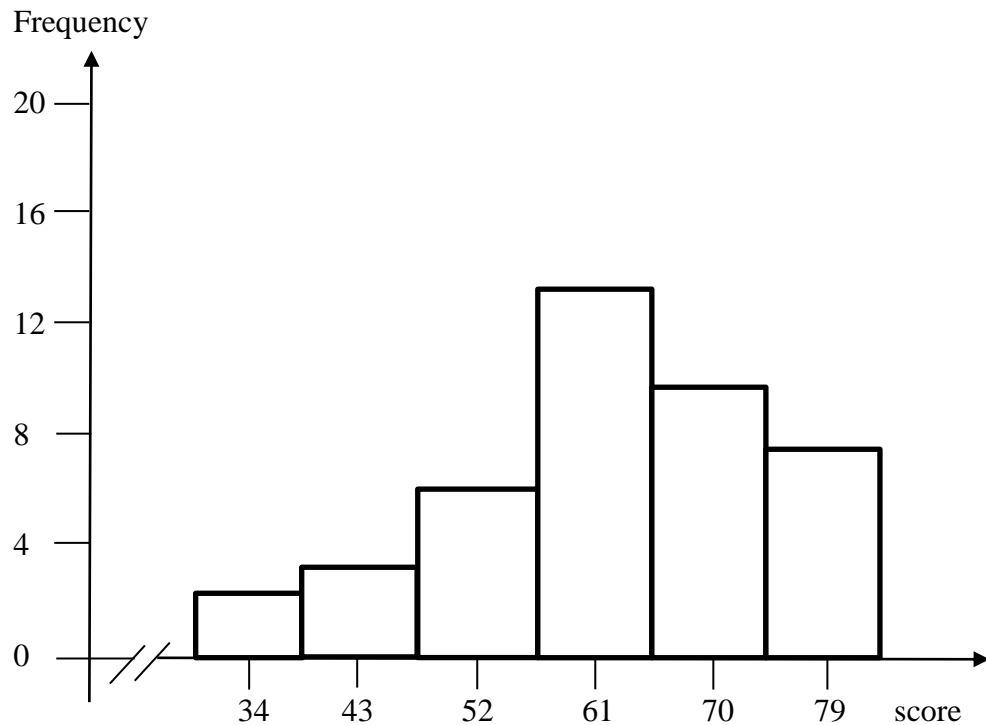
Frequency

Figure 2. Histogram the Result Score of Students' Reading
Comprehension in Control Class (Pre-test)

Based on the figure above, the frequency of students' score from

30 up to 38 was 2; 39 up to 47 was 3 ; 48 up to 56 was 6; 57 up to 65 was

13; 66 up to 74 was 9; 75 up to 83 was 7.

2. **Description of Data After Using Make a Match Technique**

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

   The calculation of the result that had been gotten by the students in answering the question (test) after the researcher did the treatment by using Make a Match technique can be seen in the following table:

Table 10. The Score of Experimental Class in Post Test

Total	3046
Highest score	90
Lowest score	50
Mean	75.23
Median	75.75
Modus	75.19
Range	40
Interval	7
Standard deviation	9.63
Variant	94.85

Based on the table above, the total score of experimental class in post-test was 3046, mean was 75.23, median was 75.75, modus was 75.19, range was 40, interval was 7, standard deviation was 9.63, and variant was 94.85. The students' highest score was 90 and the lowest score was 50. It can be seen on appendix 20. Then, the calculation of the frequency distribution of the students' score in experiment class can be applied into table frequency distribution as follow:

Table 11. Frequency Distribution of Students' Score

No	Interval	Mid Point	Frequency	Percentages
1	50 – 56	53	2	5%
2	57 – 63	60	3	7.5%
3	64 – 70	67	6	15%
4	71 – 77	74	12	30%
5	78 – 84	81	9	22.5%
6	85 – 91	88	8	20%
	$i = 7$	-	40	100%

From the table above, it can be concluded that the middle interval (71–77) had the biggest frequency (12 students/30%). The highest interval (85–91) had 8 students/20%, and the lowest interval was (50–56) with 2 students/5%.

The researcher presents them in histogram as follow:
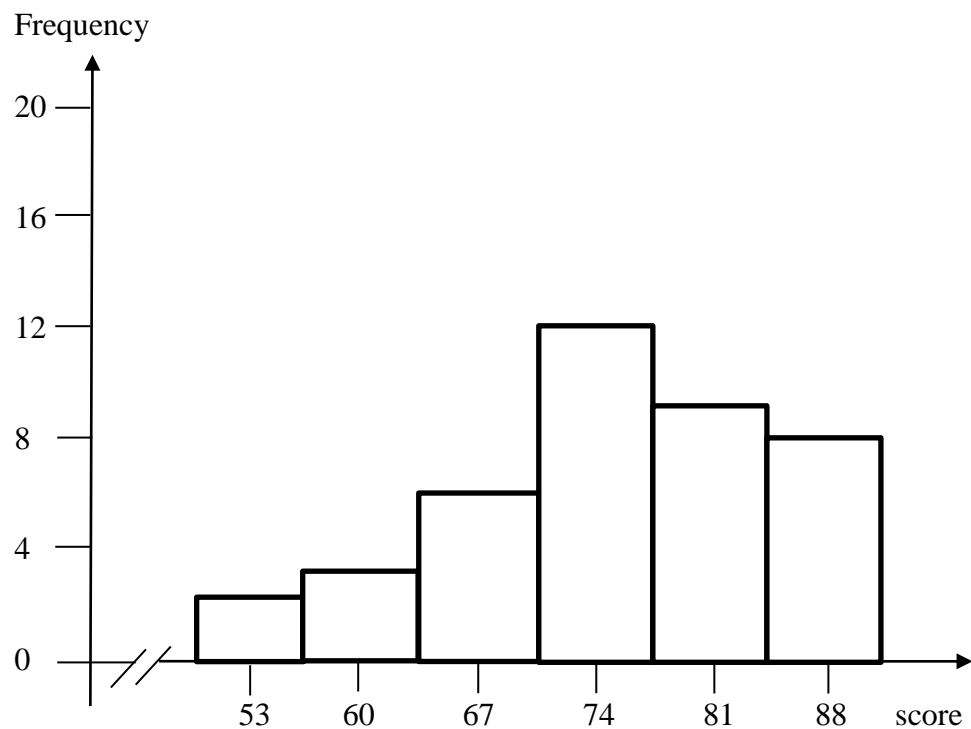
Figure 3. Histogram the Result Score of Students' Reading Comprehension in Experimental Class (Post-test)

Based on the figure above, the frequency of students' score from 50 up to 56 was 2; 57 up to 63 was 3; 64 up to 70 was 6; 71 up to 77 was 12; 78 up to 84 was 9; 85 up to 91 was 8. Then, the interval which had highest frequency was 71-77 (12 students), and the interval which had lowest frequency was 50-56 (2 students).

b. **Score of Post-Test Control Class**

As the control class, the researcher took class XI MIA 4. The result that had been gotten by the students in answering the question (test) after the researcher taught the reading comprehension by using conventional technique can be seen in the following table:

Table 12. The Score of Control Class in Post-Test

Total	2756
Highest score	82
Lowest score	42
Mean	68.98
Median	69.01
Modus	68.31
Range	40
Interval	7
Standard deviation	8.11
Variant	77.73

Based on the above table the total score of control class in post-test was 2756, mean was 68.98, median was 69.01, modus was 68.31, range was 40, interval was 7, standard deviation was 8.11, and variant was 77.73. The researcher got the highest score was 82 and the lowest score was 42. It can be seen on appendix 20. Then, the computed of the

frequency distribution of the students' score in control class can be applied into table frequency distribution as follow:

Table 13. Frequency Distribution of Students' Score

No	Interval	Mid Point	Frequency	Percentages
1	42 – 48	45	1	2.5%
2	49 – 55	52	2	5%
3	56 – 62	59	4	10%
4	63 – 69	66	14	35%
5	70 – 76	73	12	30%
6	77 – 83	80	7	17.5%
	$i = 7$	-	40	100%

From the table above, it can be concluded that the middle interval (63–69) had the biggest frequency (14 students/35%). The highest interval (77–83) had 7 students/17.5% and the lowest interval was (42–48) with 1 student/2.5%.

For the clear description of the data, the researcher presents them in histogram on the following figure:
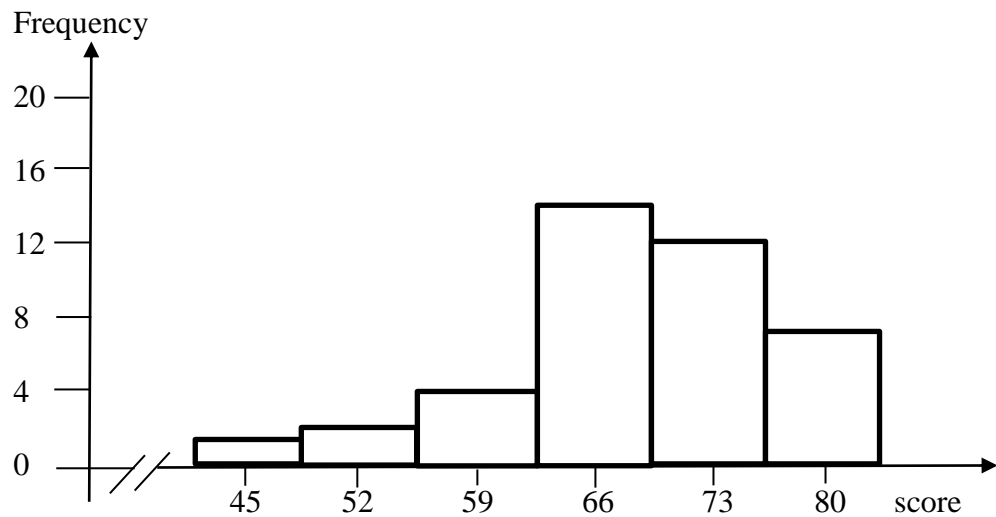
Figure 4. Histogram the Result Score of Students' Reading Comprehension in Control Class (Post-test)

Based on the figure above, the frequency of students' score from 42 up to 48 was 1; 49 up to 55 was 2; 56 up to 62 was 4; 63 up to 69 was 14; 70 up to 76 was 12; 77 up to 83 was 7. Then, the interval which had highest frequency was 63-69 (14 students) and the interval which had lowest frequency was 42-48 (1 student).

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

   a. **The Comparison Data between Pre-test and Post-test by Using Make a Match Technique**

   In pre test, the researcher did not apply treatment to experimental and control class. By giving pre test to both of classes, the researcher knew the students' ability in reading comprehension before gave a treatment.

   Based on the description data in pre test of experimental and control class, there was comparison score between pre-test experimental class before and after gave a treatment by using Make a Match technique. It can be seen in the following table:

   Table 14. The Comparison Score of Students' Reading Comprehension in Pre-test and Post-test (Experimental Class)

Students' Reading Comprehension in Pre-test				
No	Interval	Mid Point	F	Percentages
1	32 – 40	36	2	5%
2	41 – 49	45	3	7.5%
3	50 – 58	54	6	15%
4	59 – 67	63	13	32.5%
5	68 – 76	72	9	22.5%
6	77 – 85	81	7	17.5%

Students' Reading Comprehension in Post-test				
No	Interval	Mid Point	Frequency	Percentages
1	50 – 56	53	2	5%
2	57 – 63	60	3	7.5%
3	64 – 70	67	6	15%
4	71 – 77	74	12	30%
5	78 – 84	81	9	22.5%
6	85 – 91	88	8	20%

From the table above, it can be concluded that the highest interval score in pre-test experimental class was 77-85 (7 students/17.5%) and the lowest interval score was 32-40 (2 students/5%), meanwhile the highest interval score in post-test was 85-91 (12 students/30%) and the lowest score was 50-56 (2 students/5%).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:
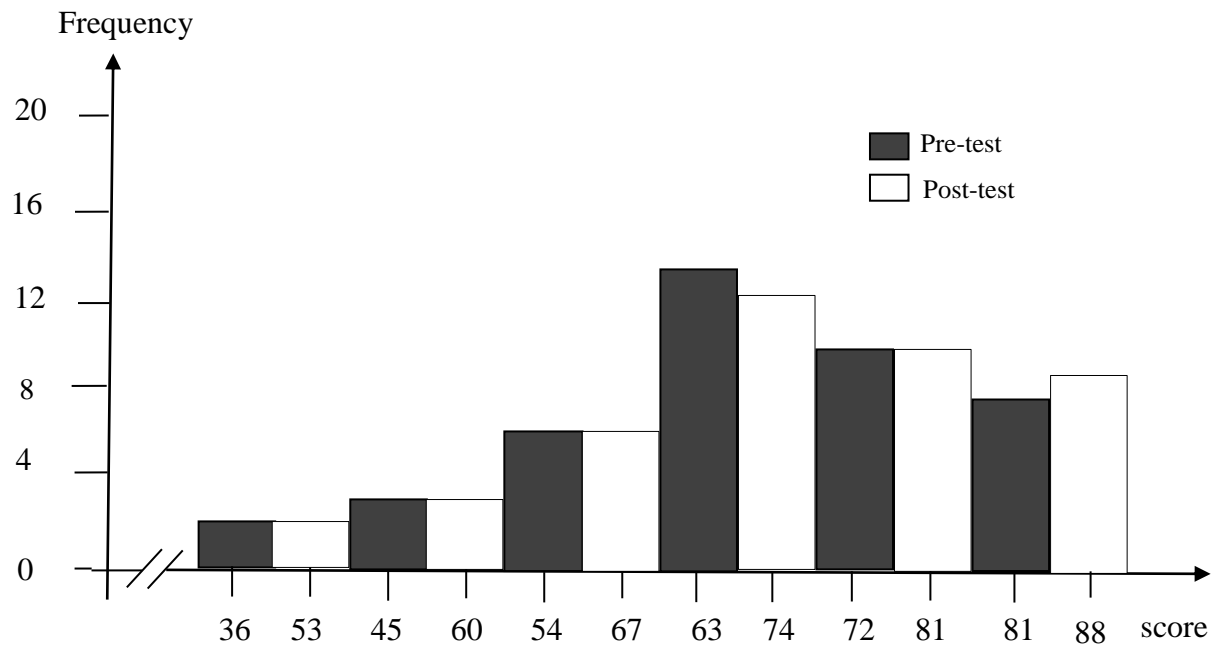
Figure 5. Histogram the Comparison Data of Students' Reading Comprehension in Pre-test and Post-test (Experimental Class)

Based on the figure above, the frequency of students' score of experimental class from 32 up to 40 (2 students/5%) in pre-test, and 50 up to 56 (2 students/5%) in post-test; 41 up to 49 (3 students/7.5%) in pre-test, and 57 up to 63 (3 students/7.5%) in post-test; 50 up to 58 (6 students/15%) in pre-test, and 64 up to 70 (6 students/15%) in post-test; 59 up to 67 (13 students/32.5%) in pre-test, and 71 up to 77 (12 students/30%) in post-test; 68 up to 76 (9 students/22.5%) in pre-test, and 78 up to 84 (9 students/22.5%) in post-test; 77 up to 85 (7 students/17.5%) in pre-test, and 85 up to 91 (8 students/20%) in post-test.

Then, the interval which had highest frequency in pre test was 59-67 (13 students/32.5%) and the interval which had lowest frequency was 32-40 (2 students/5%). In post test of experimental class, the interval which had highest frequency was 71-77 (12 students/30%) and the interval which had lowest frequency was 50-56 (2 students/5%).

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

Based on the description data in pre-test and post-test of control class, there was the comparison score between pre-test control class before and after gave a treatment by using Conventional technique. It can be seen in the following table:

Table 15. The Comparison Score of Students'
Reading Comprehension in Pre-test and Post-test (Control Class)

No	Interval	Mid Point	Frequency	Percentages
Students' Reading Comprehension in Pre-test				
No	Interval	Mid Point	Frequency	Percentages
1	30 – 38	34	2	5%
2	39 – 47	43	3	7.5%
3	48 – 56	52	6	15%
4	57 – 65	61	13	32.5%
5	66 – 74	70	9	22.5%
6	75 – 83	79	7	17.5%
Students' Reading Comprehension in Post-test				
No	Interval	Mid Point	Frequency	Percentages
1	42 – 48	45	1	2.5%
2	49 – 55	52	2	5%
3	56 – 62	59	4	10%
4	63 – 69	66	14	35%
5	70 – 76	73	12	30%
6	77 – 83	80	7	17.5%

From the table above, it can be concluded that the highest interval score in pre-test control class was 77-83 (7 students/17.5%) and the lowest interval score was 30-38 (2 students/5%), meanwhile the highest interval score in post-test was 77-83 (7 students/17.5%), and the lowest score was 42-48 (1 student/2.5%).

For the clear description of the data, the researcher presents them in histogram on the following figure:
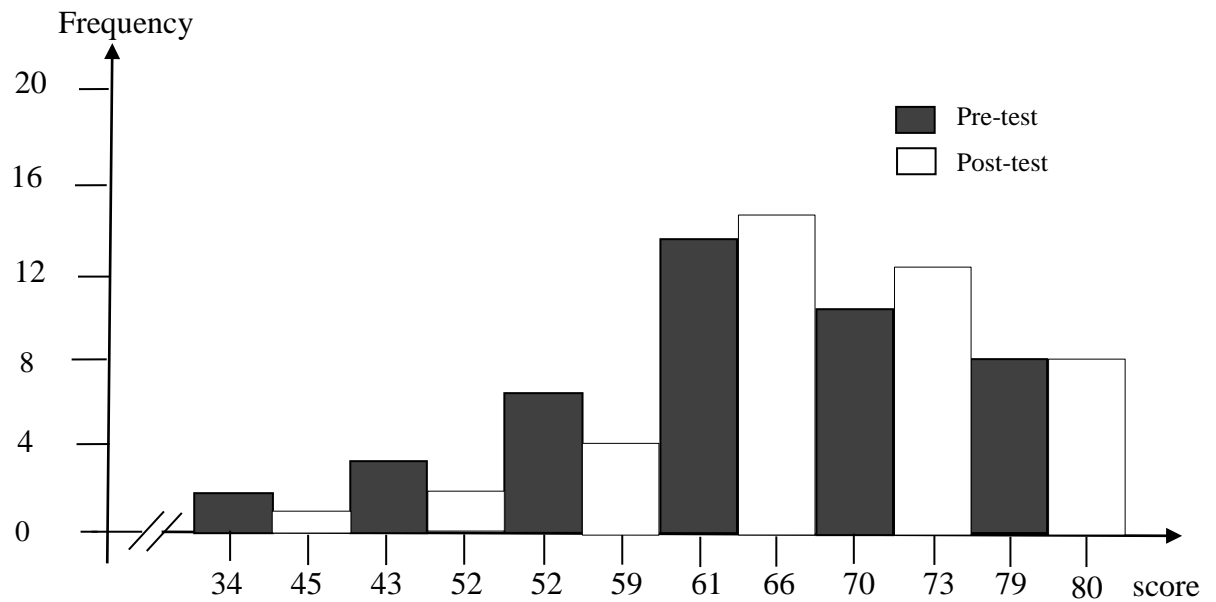
Figure 6. Histogram the Comparison Data of Students' Reading
Comprehension in Pre-test and Post-test (Control Class)

Based on the figure above, the frequency of students' score of

contol class from 30 up to 38 (2 students/5%) in pre test, and 42 up to 48

(1 student/2.5%) in post-test; 39 up to 47 (3 students/7.5%) in pre-test,

and 49 up to 55 (2 students/5%) in post-test; 48 up to 56 (6 students/15%)

in pre-test, and 56 up to 62 (4 students/10%) in post-test; 57 up to 65 (13

students/32.5%) in pre-test, and 63 up to 69 (14 students/35%) in post-

test; 66 up to 74 (9 students/22.5%) in pre-test, and 70 up to 76 (12

students/30%) in post-test; 75 up to 83 (7 students/17.5%) in pre-test, and

77 up to 83 (7 students/17.5%) in post-test.

Then, the interval which had highest frequency in pre test was 57-

65 (13 students/32.5%)) and the interval which had lowest frequency was

30-38 (2 students/5%). In post test of contol class, the interval which had

highest frequency was 63-69 (14 students/35%) and the interval which had lowest frequency was 42-48 (1 student/2.5%).

c. **The Comparison Data between Using Make a Match and Conventional Technique in Post-test**

By giving pre test to both of classes (XI MIA 3 as experimental class and XI MIA 4 as control class), the researcher knew the students' ability in reading comprehension before gave a treatment. In pre test, the researcher did not apply treatment to experimental and control class. After that, the researcher gave a treatment to one of class as experimental class and other class was not gave a treatment as control class. The experimental class by using Make a Match technique and control class by using Conventional technique. The researcher got the comparison data between post-test score an experimental and control class after gave a treatment. The comparison data it can be seen in the following table:

Table 16. The Comparison Score of Students' Reading Compehension in Experimental and Control Class (Post-test)

No	Interval	Mid Point	Frequency	Percentages
Students' Reading Comprehension in Post-test (Experimental Class)				
1	50 – 56	53	2	5%
2	57 – 63	60	3	7.5%
3	64 – 70	67	6	15%
4	71 – 77	74	12	30%
5	78 – 84	81	9	22.5%
6	85 – 91	88	8	20%
Students' Reading Comprehension in Post-test (Control Class)				
No	Interval	Mid Point	Frequency	Percentages
1	42 – 48	45	1	2.5%
2	49 – 55	52	2	5%
3	56 – 62	59	4	10%

4	63 – 69	66	14	35%
5	70 – 76	73	12	30%
6	77 – 83	80	7	17.5%

From the table above, it can be concluded that the highest interval score in post test of experimental class was 85-91 (12 students/30%) and the lowest interval score was 50-56 (2 students/5%), meanwhile the control class was 77-83 (7 students/17.5%), and the lowest interval score was 42-48 (1 student/2.5%).

For the clear description of the data is presented in the histogram comparison between description data post test of experimental and control class on the following figure:
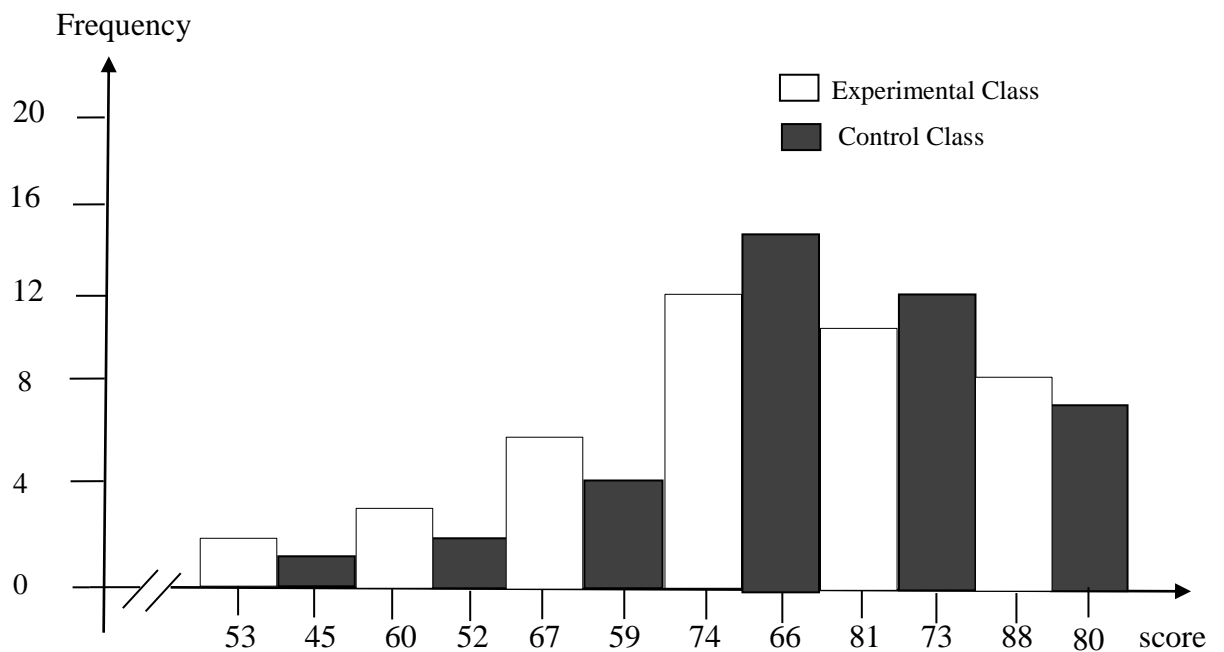
Figure 7. Histogram the Comparison Data of Students' Reading Comprehension in Experimental and Control Class (Post-test)

Based on the figure above, it can be concluded that the frequency of students' score in post test from 50 up to 56 (2 students/5%) for experimental class, and 42 up to 48 (1 student/2.5%) for control class; 57 up to 63 (3 students/7.5%) for experimental class, and 49 up to 55 (2 students/5%) for control class; 64 up to 70 (6 students/15%) for experimental class, and 56 up to 62 (4 students/10%) for control class; 71 up to 77 (12 students/30%) for experimental class, and 63 up to 69 (14 students/35%) for control class; 78 up to 84 (9 students/22.5%) for experimental class, and 70 up to 76 (12 students/30%) for control class; 85 up to 91 (8 students/20%) for experimental class, and 77 up to 83 (7 students/17.5%) for control class.

Then, the interval which had highest frequency in post test of experimental class was 71-77 (12 students/30%) and the interval which had lowest frequency was 50-56 (2 students/5%). In post test of contol class, the interval which had highest frequency was 63-69 (14 students/35%) and the interval which had lowest frequency was 42-48 (1 student/2.5%).

From the description of comparison data above, it can be conluded that the students' scores of experimental class by using Make a Match technique was higher than the students' score of control class by using Conventional technique.

B. Data Analysis

1. Requirement Test

a. Normality and Homogeneity of Experimental and Control Class in Pre-Test

Table 17. Normality and Homogeneity in Pre-Test

Class	Normality Test		Homogeneity Test	
	x^2_{count}	x^2_{table}	f_{count}	f_{table}
Experimental Class	1.027	11.070	1.12 < 4.10	
Control Class	1.694	11.070		

Based on the table above, the score of experiment class Lo = 1.027<

Lt = 11.070 with n = 40 and control class Lo = 1.694< Lt = 11.070 with n =

40, and real level α 0.05. Cause Lo < Lt in the both class. So, H_a was

accepted. It means that experiment class and control class were distributed

normal. It can be seen in appendix 17.

The coefficient of F_{count} = 1.12 was compared with F_{table}. Where F_{table}

was determined at real α 0.05, and the different numerator dk = N-1 = 40-1 =

39 and denominator dk N-1 = 40–1 = 39. So, by using the list of critical

value at F distribution is got $F_{0.05}$ = 4.10. It showed that F_{count} 1.12 < F_{table}

4.10. It shows that both experimental and control class were homogeneous.

The calculation can be seen on the appendix 18.

b. Normality and Homogeneity of Experimental and Control Class in Post-Test

Table 18. Normality and Homogeneity in Post-Test

Class	Normality Test		Homogeneity Test	
	x^2_{count}	x^2_{table}	f_{count}	f_{table}
Experimental Class	1.324	11.070	1.22 < 4.10	
Control Class	0.783	11.070		

The previous table shows that the score of experimental class Lo = 1.324 < Lt = 11.070 with n = 40 and control class Lo = 0.783< Lt = 11.070 with n = 40, and real level α 0.05. Because Lo < Lt in the both class, it means H_a was accepted. It meant that experiment class and control class were distributed normal. The calculation can be seen in appendix 20.

The coefficient of F_{count}= 1.22 was compared with F_{table}. Where F_{table} was determined at real α 0.05, and the different numerator dk = N-1 = 40-1 = 39 and denominator dk N-1 = 40-1 = 39. So, by using the list of critical value at F distribution is got $F_{0.05}$ = 4.10. It showed that F_{count} 1.22 < F_{table} 4.10. So, the researcher concluded that the variant from the data of the students' reading comprehension at XI grade of MAN 1 Padangsidimpuan in experimental and control class was homogenous. The calculation can be seen on the appendix 21.

2. **Hypothesis Testing**

After calculating the data of post-test, researcher has found that post-test result of experimental and control class is normal and homogenous. The data would be analyzed to prove the hypothesis. It used formula of t-test. Hypothesis of the research was "Make a Match technique has significant effect on reading comprehension at XI grade of MAN 1 Padangsidimpuan". The calculation can be seen on the appendix 22 and 23. The result of t-test was as follow:

Table 19. The Result of T-test from the Both Averages

Pre-test		Post-test	
t_{count}	t_{table}	t_{count}	t_{table}
0.740	2.000	3.009	2.000

The test hypothesis have two criteria. First, if $t_{count} < t_{table}$, H_0 is accepted. Second, $t_{count} > t_{table}$, H_a is accepted. Based on researcher calculation in pre test, researcher found that t_{count} 0.740 while t_{table} 2.000 with opportunity $(1 - \alpha) = 1 - 5\% = 95\%$ and dk $= n_1 + n_2 - 2 = 40 + 40 - 2 = 78$. Cause $t_{count} < t_{table}$ $(0.740 < 2.000)$, it meant that hypothesis H_a was rejected and H_0 was accepted. So, in pre test, the two classes were same. There is no difference in the both classes. But, in post test, researcher found that t_{count} 3.009 while t_{table} 2.000 with opportunity $(1 - \alpha) = 1 - 5\% = 95\%$ and dk $= n_1 + n_2 - 2 = 40 + 40 - 2 = 78$. Cause $t_{count} > t_{table}$ $(3.009 > 2.000)$, it meant that hypothesis H_a was accepted and H_0 was rejected. The calculation can be seen on the appendix 23. In this case, the mean score of experimental class by using Make a Match technique was 75.23 and mean score of control class was 68.98 that was taught by using conventional technique. So, there was the significant effect of Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan.

C. Discussion

The researcher discussed the result of this research and compared with the related findings. It also discussed with the theory that has been stated by the researcher. Related to the theory from Roebl, definition of reading

comprehension is an ability to understand what the readers read where words have context and texts have meaning.[1] Then, Anita Lie stated that Make a Match is one of simple cooperative learning technique. This technique is adaptable to most all subject and grade level. This technique was a teacher's way to teach subject matter by using cards.[2] Besides it, this technique can also give advantages for students. They are; it can develop understanding of material or subject matter because the materials of teaching are easy, can motivate students to encourage help each other master skill presented by the teacher, an effective technique in teaching reading comprehension because the students more active study and make a learning process become fun and learning material to understand easily.[3] So, it has proven that the Make a Match technique was suitable to teach students' reading comprehension and has significant effect on students' reading comprehension.

Based on the related findings, Sri Wahyuni said that Make a Match technique suitable to teach reading comprehension, Make a Match teaching technique can increase students' reading comprehension because teaching learning process in the classroom become fun. So, it was make the class more active study and the students to undestand material easily.[4] It meant that the

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[1] K.M. Roebl, *Developing Reading Comprehension Skill in EFL,* (Taiwan: St. Jhon's University, 2003), p.177.

[2] Anita Lie, *Cooperative Learning,* (Jakarta: PT. Grasiondo, 2008), p. 55.

[3] Istarani, *58 Model Pembelajaran Inovatif,* (Medan: Media Persada, 2014), p.65.

[4] Sri Wahyuni, The Effectiveness of Using Make a Match Technique in Teaching Reading Comprehension to the First Grade Students of SMP Negeri 2 Sulang, Rembang, retrived from *http://www.lib.unnes.ac.id.,* on October 28th, 2017 at 10.00 a.m.

application of Make a Match technique was suitable to teach the students'
reading comprehension.

Next, Asri Pratiwiningsih said that used Make a Match technique can
increase the students' reading comprehension. It can be seen that the students
ability in identifying information from the text more easily because they are
learning by using several cards and the class more enjoyable. So, the score of
students' reading comprehension after using Make a Match technique was higher
than before using Make a Match technique.[5] It meant that the Make a Match
technique suitable to teach students' reading comprehension in Report text.

Then, Sri Alvera Ayu, said that Make a Match technique suitable to teach
reading comprehension. The students became easier in understanding a text,
remembering words or sentence and they also knew the deep meaning of the
words that have been learned. Besides it, the students were so enthusiastic to
follow in reading comprehension lesson because it was presented with those
several cards.[6] So, the implication of Make a Match technique was suitable to
teach students' reading comprehension and give a positive effect on students'
reading comprehension.

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[5]Asri Pratiwiningsih, The Effectiveness of Make a Match Technique in Teaching Reading
Comprehension Report Text at XI Grade SMA Negeri 1 Ngimbang Lamonan, retrieved from
http://www.ejournal.stkipjb.ac.id /indexphp/AS/article/download/225/161/pdf., on October 14th, 2016
at 04.20 p.m.
[6]Sri Alvera Ayu, The Effect of Using Make a Match Technique on Students' Reading
Comprehension of Recount Text at the Tenth Grade SMA Xaverius 2 Jambi, retrieved from
http://www.ejournal.undiksha.ac.id., on October 28th, 2017 at 10.50 a.m.

The research result and the theory has proven that this technique is good where the students were so enthusiastic to follow in reading comprehension lesson because it was presented with those several cards. The students directly had spirit when they were asked to find out their partner that match with their each card. They didn't mind to translate all of word or sentences in the text, feel bored when they were asked to read full text and answer the questions. So, it was a proud while looking them think hard, but still enthutiastic, to find out some answer from the questions about the topic from the text, main idea, information, meaning from the vocabulary, and conclusion from the text related to cards that they hold on. They became easier in understanding a text, remembering words or sentence and they also knew the deep meaning of the words that have been learned.

This proofs show that Make a Match technique is suitable to be applied in teaching reading comprehension. So, Make a Match technique has given the effect to the research that has been done by the researcher or the other researcher who mentioned in related findings.

D. Limitation of the Research

The research was limited in some situations. It was the problems in the class that appeared during doing the research, but the researcher couldn't hold or improve those things. The limitation of the research was as follow:

1. The researcher was not sure whether all of students in the experimental class and control class did the test honestly. There was a possibility that some of them answered the test by copying or imitating their friends' answer.

2. The students were noisy while in 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. Of course it made them can not get the teacher's explanation well and gave the impact to the post-test answer.

3. It was also a possibility that some of students were not too serious in answering the pre-test and post-test. It may caused by the test, because they knew before that the test would not influence their score in the school. It made them answer the test without thinking hard and the answer of the test was not pure because they did not do it seriously.

CHAPTER V

CONCLUSION AND SUGGESTION

A. Conclusion

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

1. Before using Make a Match technique, the students' mark in reading comprehension was unsatisfied. The mean score of pre-test for the experimental class that used Make a Match technique was 64.13.

2. After using Make a Match technique, the mean score of experimental class was higher than before using Make a Match technique. The mean score of post-test for the experimental class was 75.23.

3. The researcher found the research result of t-test where t_0 was higher than t_t. t_0 was 3.009 and t_t was 2.000 (3.009 > 2.000). It meant that there was a significant effect of Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan where H_a was accepted and H_0 was rejected.

B. Suggestion

After finishing the research, the reseracher got many informations in English teaching and learning. Therefore, from that experience, the researcher saw some things need to be improved. It makes the researcher give some suggestions, as follow:

1. From the research result it can be seen that the students' score were unsatisfied. So, the researcher hopes to the English teacher of MAN 1 Padangsidimpuan to apply various innovative technique in teaching English. It also can be supported by choosing right media and good class management. Besides it, it is also important for students to follow learning process seriously, because the success of learning is in students' result.

2. From the second conclusion, it can be seen that the experimental class which was taught by using Make a Match technique, got the improvement from 64.13 to 75.23 meanwhile the control class which was not taught by Make a Match technique got the improvement from 62.13 to 68.98. So, the researcher suggests to the English teacher of MAN 1 Padangsidimpuan to use this technique in teaching reading comprehension.

3. From the last conclusion, it can be seen that score of experimental class was higher than control class. The researcher suggests to use Make a Match technique in the both classes. So, the control class will have same result. Besides it, it is also hoped to be used in another classes, or in different grade, even in another schools, because of the improvement that has been made by using this technique. So, it is hoped, that Make a Match technique can increase students' reading comprehension in larger area. Besides, the teacher and the other researcher who wants to apply this technique are hoped to manage the class well during the application of Make a Match technique. For the other researchers, to develop the findings of this

research largely by adding variables, enlarging sample, or making combination in research approach.

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CURRICULUM VITAE

A. Identity

Name   : Annisa Nur Habibie A.R. Harahap

Nim   : 13 340 0006

Place and Birthday : Padangsidimpuan, 31st March 1996

Sex   : Female

Religion   : Moslem

Address   : Jl. Kapten Koima No.70 Kota Padangsidimpuan Utara

B. Parents

1. Father's name   : Ir. Abdul Rahman Harahap
2. Mother's name   : Sari Pannur Tarihoran S.P.

C. Educational Background

1. Kindergarden   : TK 'Aisyiyah Bustanul Athfal Padangsidimpuan   (2001)
2. Elementary School   : SD Negeri 200104 Padangsidimpuan   (2007)
3. Junior High School : Mts. Muhammadiyah 22 Padangsidimpuan   (2010)
4. Senior High School : MAN 1 Padangsidimpuan   (2013)
5. Institute   : IAIN Padangsidimpuan   (2017)

Appendix 1

Experimental Class

<div align="center">

RENCANA PELAKSANAAN PEMBELAJARAN

(RPP)

</div>

Nama Sekolah	: Madrasah Aliyah Negeri (MAN) 1 Padangsidimpuan
Kelas/Semester	: XI/1
Subjek	: Bahasa Inggris
Jenis Teks	: Text Fungsional
Aspek/Skill	: Membaca/ *Reading*
Alokasi Waktu	: 4 x 45 menit (2x pertemuan)

A. Standar Kompetensi

1. Memahami makna dalam esei pendek sederhana untuk berinteraksi dengan lingkungan sekitar

B. Kompetensi Dasar

1.1 Merespon makna dan langkah retorika dalam esei pendek sederhana secara akurat, lancar, dan berterima yang berkaitan dengan lingkungan sekitar.

C. Indikator

1. Siswa mampu menentukan topic dari teks
2. Siswa mampu menentukan main idea dari teks
3. Siswa mampu mengambil informasi penting dari teks
4. Siswa mampu memahami makna-makna tertentu dari sebuah kata
5. Siswa mampu membuat kesimpulan dari teks

D. Tujuan Pembelajaran

1. Siswa dapat lebih mudah memahami teks bacaan
2. Siswa dapat memprediksi apa yang akan dihadapi oleh mereka dalam teks bacaan

Karakter siswa yang diharapkan: Dapat dipercaya (*Trustworthiness*)

Rasa hormat dan perhatian (*Respect*)

Tekun (*Diligence*)

E. Materi Pembelajaran

- Text fungsional

F. Metode Pembelajaran

- Make a Match Technique

G. Langkah-Langkah Kegiatan Pembelajaran

Pertemuan 1

- **Kegiatan Pendahuluan**

   1. Guru membuka kelas dengan mengucapkan *basmalah* dan salam

   2. Absensi dan mempersilahkan siswa untuk membaca do'a belajar sesuai agama dan kepercayaan masing-masing

   3. Guru menjelaskan tujuan pembelajaran yang akan dicapai

- **Kegiatan Inti**

   1. Guru memberikan teks berbentuk teks fungsional kepada siswa.

   2. Guru menyiapkan beberapa kartu yang berisi tentang materi atau beberapa topik teks berbentuk teks esei.

   3. Guru menjelaskan aturan permainan dari tehnik yang akan diajarkan (Make a Match Technique).

   4. Guru menginstruksikan kepada masing-masing siswa untuk mengambil satu buah kartu dari beberapa kartu yang telah disediakan.

   5. Masing-masing siswa mendapatkan 1 buah kartu. Kemudian, siswa membaca teks.

   6. Setiap siswa mencari pasangan yang mempunyai kartu yang cocok dengan kartunya (soal-jawaban), sesuai dengan teks.

   7. Siswa bisa bergabung dengan siswa lain yang memegang kartu yang berhubungan dan dapat mencocokkan kartunya sebelum batas waktu yang diberikan.

   8. Guru memberikan poin kepada setiap siswa.

- **Kegiatan Penutup**

  1. Guru mengumpulkan hasil kerja siswa

  2. Guru dan/atau beserta siswa membuat kesimpulan tentang materi yang sudah dipelajari

  3. Guru menutup pertemuan dengan *hamdalah* dan salam

Pertemuan 2

- **Kegiatan Pendahuluan**

  1. Salam

  2. Absensi

  3. Do'a

- **Kegiatan Inti**

  1. Mengingatkan kembali materi/teks yang sudah dipelajari

  2. Siswa menjawab soal yang diberikan guru

- **Kegiatan Penutup**

  1. Guru mengumpulkan hasil kerja siswa

  2. Guru menutup pertemuan dengan *hamdalah* dan salam

H. Media dan Sumber Belajar
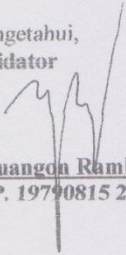
1. Media

   a. *Boardmarker*

   b. *Whiteboard*

   c. *Cards*

2. Sumber Belajar

   a. Buku yang relevan
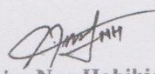
   b. Kamus

   c. Internet

I. Penilaian

Indikator Pencapaian Kompetensi	Teknik Penilaian	Bentuk Instrumen	Instrumen Soal
▪ The topic of the text ▪ The main idea ▪ Finding the Information ▪ Vocabulary ▪ Deciding the conclusion	Tes Tulis	Multiple Choice	Read the text. Then answer the question!

Padangsidimpuan, 30 Agustus 2017

Mengetahui,
Validator

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

Researcher

Annisa Nur Habibie A.R. Harahap
NIM. 13 340 0006

LEARNING MATERIAL

Text 1

Read the text below and answer the question!

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

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

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

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

Text 2

Read the text below and answer the question!

Long, long ago, mosquitoes didn't buzz, they talked and talked.

One day a mosquito was talking to an Iguana. Telling him about his vacation, about every minute of his vacation. A mosquito would not let the Iguana say one word. The Iguana was so annoyed that he walked away leaving the mosquito still talking the Iguana grumble and waved her tail. She was still grumbling when she passsed her friend the snake, and forgot all about saying hello. The snake was feeling hurt. He felt so sad that he slithered down. A rabbit hole help yelled. A rabbit as she scurried out of the hole terrified of the snake what's wrong cawed. A crow monkey heard crow's warning and took off through the treetops leaping branch to branch. When the monkey landed on owl's branch high up in a leafy tree. An owl's nest

tipped off the branch and fell to the ground breaking the owl's eggs. The owl was heartbroken so much that she didn't hoot for the sun to come up and when it did the mosquito lost his voice all. He could do was buzzing in everyone's ears zzzzz! Is everyone still mad at me ?

Content of cards (Questions-answer)

Text 1

What is the topic of the text? (Text 1)	The cleverest animals
What is the main ideas of third paragraph? (Text 1)	Dolphins have a simple language
What kind of animal is dolphins? (Text 1)	A mammal
Where is dolphin's lives ? (Text 1)	In the sea
It is a mammal (in paragraph 2). "It" refers to? (Text 1)	Dolphins
Why talking to dolphins not easy? (Text 1)	Because dolphins cannot hear the kind of sounds man can make
The antonym of 'easy' is	Difficult

What is the characteristic of dolphin? (Based on the text 1)	→	Dolphins have a simple language, able to talk to one another and also very friendly toward man.
The synonym of 'friendly' is	→	Familiar
They often follow ships (in paragraph 4). "They" refers to ...? (Text 1)	→	Dolphins
....,therefore, he will have to make a third language which both he and the dolphins can understand. (in paragraph 3). "He" refers to ....? (Text 1)	→	Man
The antonym of 'clever' is	→	Stupid
What is the conclusion of the text ? (Text 1)	→	Chimpanzees were the cleverest animals after man. And Dolphins is one of them.

Text 2

What is the topic of the text? (Text 2)	→	Why do Mosquitoes buzz?
What is the main idea of the second paragraph? (Text 2)	→	The Mosquito lost his voice all.
He felt so sad that he slithered down. The underline word refers to	→	The snake
The antonym of 'sad' is	→	Happy
She was still grumbling when she passsed her friend the snake. The antonym of underline word is ...	→	Enemy
Who was leaving the Mosquito?	→	The Iguana
The synonym of 'wrong' is	→	False

He could do was buzzing in everyone's ears zzzz! The word 'he' refers to	→ The Mosquito
Who lost his voice all ?	→ The Mosquito
When did this story happen?	→ Long, long ago
The antonym of 'high' is	→ Low
Why the Iguana let the Mosquito?	→ Because the Iguana was so annoyed about all of Mosquitoes' story.
What is the conclusion of the text?	→ The Mosquito lost his voice all, and he could do was buzzing in everyone's.
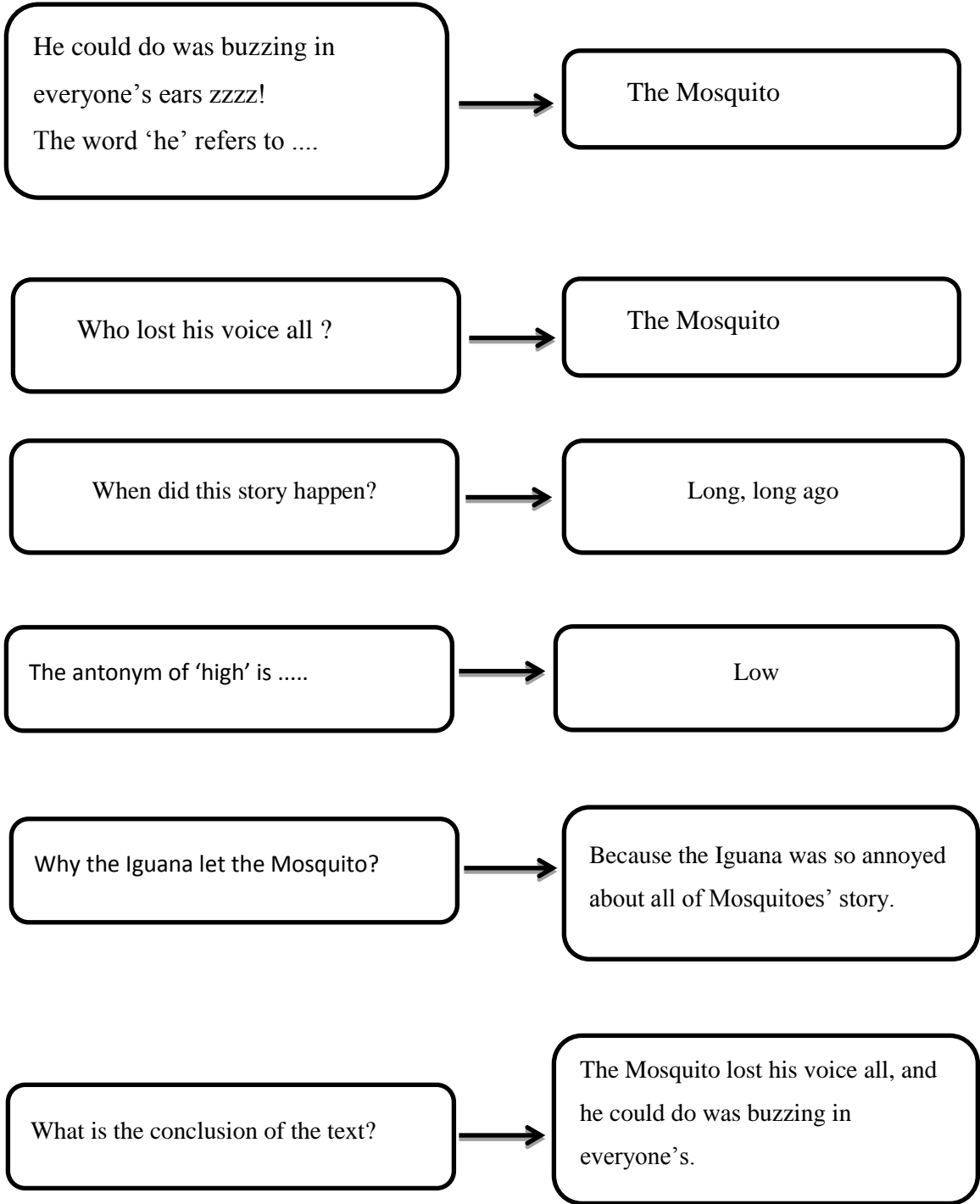
Control Class

RENCANA PELAKSANAAN PEMBELAJARAN

(RPP)

Nama Sekolah	: Madrasah Aliyah Negeri (MAN) 1 Padangsidimpuan
Kelas/Semester	: XI/1
Subjek	: Bahasa Inggris
Jenis Teks	: Text Fungsional
Aspek/Skill	: Membaca/ *Reading*
Alokasi Waktu	: 4 x 45 menit (2x pertemuan)

A. Standar Kompetensi

1. Memahami makna dalam esei pendek sederhana untuk berinteraksi dengan lingkungan sekitar

B. Kompetensi Dasar

1.1 Merespon makna dan langkah retorika dalam esei pendek sederhana secara akurat, lancar, dan berterima yang berkaitan dengan lingkungan sekitar.

C. Indikator

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2. Siswa mampu menentukan main idea dari teks
3. Siswa mampu mengambil informasi penting dari teks
4. Siswa mampu memahami makna-makna tertentu dari sebuah kata
5. Siswa mampu membuat kesimpulan dari teks

D. Tujuan Pembelajaran

1. Siswa dapat lebih mudah memahami teks bacaan
2. Siswa dapat memprediksi apa yang akan dihadapi oleh mereka dalam teks bacaan

Karakter siswa yang diharapkan: Dapat dipercaya (*Trustworthiness*)

Rasa hormat dan perhatian (*Respect*)

Tekun (*Diligence*)

E. Materi Pembelajaran

- Text fungsional

F. Metode Pembelajaran

- Conventional Technique

G. Langkah-Langkah Kegiatan Pembelajaran

Pertemuan 1

- **Kegiatan Pendahuluan**

1. Guru membuka kelas dengan mengucapkan *basmalah* dan salam

2. Absensi dan mempersilahkan siswa untuk membaca do'a belajar sesuai agama dan kepercayaan masing-masing

- **Kegiatan Inti**

1. Guru menyampaikan topik yang akan dipelajari

2. Guru memberikan teks berbentuk teks fungsional kepada siswa

3. Guru meminta siswa untuk membaca teks yang akan dipelajari

4. Guru memberikan penjelasan mengenai teks fungsional yang telah dibaca

5. Guru meminta siswa menerjemahkan teks ke dalam bahasa Indonesia

6. Guru meminta siswa menuliskan kosakata dari teks dan menghafalnya

7. Guru meminta siswa untuk menjawab beberapa pertanyataan/soal latihan dari teks tersebut

- **Kegiatan Penutup**

1. Guru mengumpulkan hasil kerja siswa

2. Guru dan/atau beserta siswa membuat kesimpulan tentang materi yang sudah dipelajari

3. Guru menutup pertemuan dengan *hamdalah* dan salam

Pertemuan 2

- **Kegiatan Pendahuluan**

1. Salam

2. Absensi

3. Do'a

- **Kegiatan Inti**

1. Mengingatkan kembali materi/teks yang sudah dipelajari

2. Menyimak hafalan kosakata siswa

3. Siswa menjawab soal yang diberikan guru

- **Kegiatan Penutup**

1. Guru mengumpulkan hasil kerja siswa

2. Guru menutup pertemuan dengan *hamdalah* dan salam

H. Media dan Sumber Belajar

1. Media

   a. *Boardmarker*

   b. *Whiteboard*

   c. *Students' worksheet*

2. Sumber Belajar
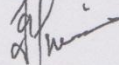
   a. Buku yang relevan
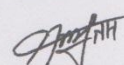
   b. Kamus

   c. Internet

I. Penilaian

Indikator Pencapaian Kompetensi	Teknik Penilaian	Bentuk Instrumen	Instrumen Soal
▪ The topic of the text ▪ The main idea ▪ Finding the Information ▪ Vocabulary ▪ Deciding the conclusion	Tes Tulis	Multiple Choice	*Read the text. Then answer the question!*

Padangsidimpuan, 06 September 2017

Mengetahui,
Validator

Researcher

Afnita Warni, S.Pd
NIP. 19770423 200501 2 004

Annisa Nur Habibie A.R. Harahap
NIM. 13 340 0006

LEARNING MATERIAL

Text 1

Read the text below and answer the question!

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

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

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

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

Questions !
1. What is the topic of the text?
2. The main idea of third paragraph is ....
3. What kind of animal is dolphins?
4. Where is dolphin's lives ?
5. It is a mammal (in paragraph 2). The word 'it' refers to ...
6. Why talking to dolphins not easy?
7. The antonym of 'easy' is ....
8. What is the characteristic of dolphin? (Based on the text above)
9. The synonym of 'friendly' is .....
10. ....,therefore, he will have to make a third language which both he and the dolphins can understand. (in paragraph 3). "He" refers to ....

11. They often follow ships (in paragraph 4). "They" refers to ...

12. The antonym of 'clever' is ....

13. What is the conclusion of the text?

Text 2

Read the text below and answer the question!

Long, long ago, mosquitoes didn't buzz, they talked and talked.

One day a mosquito was talking to an Iguana. Telling him about his vacation, about every minute of his vacation. A mosquito would not let the Iguana say one word. The Iguana was so annoyed that he walked away leaving the mosquito still talking the Iguana grumble and waved her tail. She was still grumbling when she passsed her friend the snake, and forgot all about saying hello. The snake was feeling hurt. He felt so sad that he slithered down. A rabbit hole help yelled. A rabbit as she scurried out of the hole terrified of the snake what's wrong cawed. A crow monkey heard crow's warning and took off through the treetops leaping branch to branch. When the monkey landed on owl's branch high up in a leafy tree. An owl's nest tipped off the branch and fell to the ground breaking the owl's eggs. The owl was heartbroken so much that she didn't hoot for the sun to come up and when it did the mosquito lost his voice all. He could do was buzzing in everyone's ears zzzzz! Is everyone still mad at me ?

Questions !

1. What is the topic of the text?

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

3. <u>He</u> felt so sad that he slithered down. The underline word refers to ...

4. The antonym of 'sad' is .....

5. She was still grumbling when she passsed her <u>friend</u> the snake. The antonym of underline word is ...

6. Who was leaving the Mosquito?

7. The synonym of 'wrong' is ....

8. He could do was buzzing in everyone's ears zzzz! The word 'he' refers to ....

9. Who lost his voice all ?

10. When did this story happen?

11. The antonym of 'high' is .....

12. Why the Iguana let the Mosquito?

13. What is the conclusion of the text?

Appendix 3

Choose the best answer based on the text!

Reading passage 1 for number 1-20

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 into the Island.

Wingo Island has no 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 fall off, another tree grows in a minute.

The weather on Wingo Island is very hot but at twelve o'clock, everyday, 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 bingglo. It is like an iglo but it is on long poles. It has a ladder to get up and a slide to come down. The bigglo has a moss bed, chairs, and tables that are made of Fruji trees.

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

1. What is the topic of the text?
   a. A river
   b. Lake
   c. An island
   d. Valley

2. According to passage, which of the following is *not true*?
   a. Many sharks are in Wingo island
   b. Wingo is an island

c. The weather in Wingo island is tropic all the time

d. Wingo is really a place to dream

3. "It is place to listen to the leaves <u>whispering</u>." (last paragraph)

The closest meaning of the underlined word is ?

a. Singing

b. Laughing

c. Speaking loudly

d. Makes a soft sound

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

a. There is no television on Wingo island

b. The weather on Wingo island is very hot

c. The island of Wingo is by the island of Singa

d. Wingo island has no sand

5. "It is really a place to dream." (in paragraph 4)

The word "It" refers to?

a. The television

b. The weather

c. The Wingo island

d. The clouds

6. People can only get to Wingo Island by?

a. Boat

b. Car

c. Airplane

d. Horse

7. Where are the people's sleep on Wingo Island?

a. In a kitchen

b. In a house

c. In a bigglo

d. In a room

8. It is place to listen to the leaves whispering. The word "it" refers to?

    a. Boat

    b. Television

    c. Wingo island

    d. Computer

    e. Bigglo

9. They are so many that the water bubbles like a whirlpool. The underlined word refers to ...

    a. Boat

    b. Water

    c. Wingo island

    d. Sharks

10. The Wingo island called .....

    a. Island of Lion

    b. Island of Singa

    c. Island of Crocodile

    d. Island of Bird

11. It is like an iglo but it is on long poles. Who is 'it' in the underline word?

    a. People

    b. A bigglo

    c. An island

    d. Fruji tress

12. When fall rains on Wingo Island?

    a. Everyday

    b. At twelve o'clock everyday

    c. At twelve half everyday

    d. At ten everyday

13. The weather on Wingo Island is very hot but at twelve o'clock, everyday, it rains. The antonym of underlined word is ...

    a. Rains

b. Hot

c. Cold

d. Summer

14. Tall stars called ....

    a. Fruji flower

    b. Fruji grow

    c. Purple leaves

    d. Yellow fruit

15. The main idea of the third paragraph is ....

    a. There is no television on Wingo island

    b. The weather on Wingo island is very hot

    c. The weather on Wingo island is cold

    d. Wingo island has no sand

16. What is the conclusion of the passage?

    a. Wingo island has green moss

    b. There are hundreds of sharks in Wingo island

    c. The weather on Wingo island is very hot

    d. Wingo island is really a place to dream

17. People can only get to Wingo island by boat. The clostest meaning of the underlined word is ...

    a. Achieve

    b. Go

    c. Can

    d. Arrive

18. What is nothing on Wingo island ? (Based on last paragraph?

    a. Television, telephone, computer

    b. Sand, telephone, computer

    c. Television, telephone, green moss

    d. Telephone, computer, water

19. Sometimes, <u>there</u> are windstorm. The underlined word refers to...

    a. The Wingo island

    b. The weather on Wingo island

    c. The bingglo

    d. The weather on island

20. Wingo island is a place to ...

    a. Lie on hard green moos and look at the sky

    b. Lie on soft green moss and look at the water

    c. Lie on soft green moss and look at the clounds

    d. Lie on soft green moss and look at the boat

Reading passage 2 for number 21-34

Snakes are reptiles. They belong to the same group as lizards (the scaled group, Squamata) but for asub group of their own (Serpentes).

Snakes have two legs but a long time ago they had claws to help them slither along. Snakes are not slimy. They are covered in scales which are just bumps on the skin. Their skin is hard and glossy to reduce friction as the snake slither along the ground.

Most snakes lives in the country. Some types of snakes live in tress, some live in water, but most usually consist of frogs, lizard, and mice and other snakes. The Anaconda can eat small crocodile and even wild boards.

Many snakes protect themselves with their fangs. Boa Constrictors can give you a bear hug which is so powerful, it can crush every sinle bone in your body. Some snakes are protected by scaringtheir enemies away like the Cobra. The flying snakes glided away from danger. Their ribs spread apart and the skin stretches out. Its technique is just like sugar fliders.

21. What is the topic of the text?

    a. Snakes

    b. Snake in the Bath

    c. Types of snakes

d. Features of reptiles

22. The word "them" in the second paragraph first line refers to ?

    a. Claws

    b. Snakes

    c. Bumps

    d. Reptiles

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

    a. Many snakes protect themselves with their fangs

    b. Snakes are reptiles

    c. Most snakes live in the country

    d. The Anaconda can eat small crocodile

24. The antonym of 'hard' is ....

    a. Cold

    b. Hot

    c. Glossy

    d. Soft

25. Many snakes protect themselves with ....

    a. Their claws

    b. Their fangs

    c. Their skin

    d. Their body

26. Where is lives most of snakes?

    a. In the garden

    b. In the house

    c. In the country

    d. In the zoo

27. What is the function of snake's skin?

    a. To protect their eyes

    b. To help them slither along

    c. To protect themselves

d. To reduce friction

28. A snakes diet usually consists of frogs, lizards, and mice, and other snakes (paragraph 3). The word "diet" has the same meaning as ?
    a. Enemy
    b. Predator
    c. Prey
    d. Friend

29. Their ribs spread apart and the skin stretches out. The word "their" in the sentence refers to?
    a. Reptiles
    b. Crocodiles
    c. Snakes
    d. Frogs

30. How is the snakes' skin?
    a. Soft and hard
    b. Hard and glossy
    c. Hard and soft
    d. Soft and glossy

31. They are covered in scales which are just bumps on the skin. Who is 'they' in the underline word?
    a. Anaconda
    b. Snakes
    c. Reptile
    d. Frogs

32. What is the function of snakes' claws?
    a. To help them slither along
    b. To help them flying along
    c. To help them run
    d. To help them protect from their enemies

33. What is the conclusion of the text?

a. Snakes are reptiles and live in the country

b. Snakes are reptiles

c. Snakes are not slimy

d. Snakes live in the country

34. What were claws of snakes for a long time ago?

    a. To help them slither along

    b. In order to live in scaled group

    c. To be able to eat small crocodile

    d. In order to protect from their enemies

Reading passage 3 for number 35-50

One upon a time, a hawk fell in love with a hen. The hawk flew down from the sky and asked the hen, "Will you marry me?"

The hen loved the brave, strong hawk and wished to marry him. But she said, "I cannot fly as high as you can. If you give me time, I may learn to fly as high as you. Then we can fly together."

The hawk agreed. Before he went away, he gave the hen a ring. "This is to show that you have promised to marry me," said the hawk.

It so happened that the hen had already promised to marry a rooster. So, when the rooster saw the ring, he became very angry. "Throw that ring away at once!" shouted the rooster. The hen was so frightened at the rooster's anger that she threw away the ring immediately.

When the hawk came a few months later, the hen told him the truth. The hawk was so furious that he cursed the hen, "Why didn't you tell me earlier? Now, you'll always be scratching the earth, and I'll always be flying above to catch your children," said the hawk.
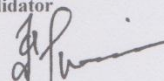
35. What is the topic of the text?

    a. Why do hawk help chicks?

    b. Why do hawk love chicks?

    c. Why do hawk hunt rooster?

d. Why do hawk hunt chicks?

36. The antonym of 'brave' is ...

    a. Afraid

    b. Strong

    c. Smart

    d. Beautiful

37. Who fell in love to the hen?

    a. Rooster

    b. Hawk

    c. Chicken

    d. Cat

38. The second paragraph tell about?

    a. The hen gave a request before they married

    b. The hen gave a ring to the hawk

    c. The hen learn to fly

    d. The hawk gave a ring to the hen

39. The antonym of 'strong' is ....

    a. Brave

    b. Pretty

    c. Weak

    d. Deligent

40. If you give me time. The antonym of underline word is .....

    a. Gave

    b. Receive

    c. Throw

    d. Save

41. When did this story happen?

    a. Last week

    b. Last year

    c. Once upon a time

d. Last month

42. Who was angry when saw the ring's hen?

    a. Hawk

    b. Hen

    c. Cat

    d. Rooster

43. What is the meaning of 'ring'?

    a. Gelang

    b. Perhiasan

    c. Cincin

    d. Sepatu

44. What did rooster says to hen?

    a. Will you marry me?

    b. I'll always be flying above to catch your children!

    c. Throw that ring away at once!

    d. I can not fly as high as you can.

45. The hawk was so furious that he cursed the hen. The word 'he' refers to?

    a. Hawk

    b. Hen

    c. Rooster

    d. Children

46. The third paragraph tell about ...

    a. The hawk fell in love to the hen

    b. The hawk gave a ring to the hen

    c. The hawk agreed request from the hen

    d. The hawk promise to marry hen

47. What is the curse from hawk?

    a. I'll always be flying above to help your children!

    b. You'll always be scratching the earth, and I'll always be flying above to catch your children!

b. You'll always be scratching the earth, and I'll always be flying above to catch your children!

c. Throw that ring away at once!

d. I can not fly as high as you can.

48. By reading the text, we can conclude that....

   a. Don't be promise if you can not to fulfill !

   b. Don't fly if you can not fly together !

   c. Don't disturb everyone !

   d. Don't judge everyone if you can not about him/her !

49. 'Him' in paragraph 2 line 1 refers to ....

   a. Hen

   b. Hawk

   c. Rooster

   d. Earth

50. Who was told the truth to the hawk?

   a. The rooster

   b. The hen

   c. The hawk

   d. The cat

Padangsidimpuan, 06 September 2017
Validator

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Appendix 4

<center>**INSTRUMENT FOR POST-TEST**</center>

Choose the best answer based on the text!

Reading passage 1 for number 1-17

Antibiotic is a drug produced by certain microbes. Antibiotics destroy other microbes that damage human tissues. They are used to treat a wide variety of diseases, including gonorrhea, tonsillitis and tuberculosis. Antibiotics are sometimes called 'wonder drugs' because they can cure diseases such as meningitis, pneumonia and scarlet fever. But when the antibiotics are overused, or misused, these drugs make a person sensitive being attacked by a superbug.

Antibiotics do not always distinguish between harmless and dangerous microbes. If a drug destroys too many harmless micro-organism, the pathogenic ones -the dangerous microbes will have a greater chance to multiply. This situation often leads to the development of a new infection called superinfection. Extensive use of some antibiotics may damage organs and tissues. For example, streptomycin, which is used to treat tuberculosis, has caused kidney damage and deafness.

Resistance to antibiotics may be acquired by pathogenic microbes. The resistant microbes transfer genetic material to non-resistant microbes and cause them to become resistant. During antibiotic treatment, non-resistant microbes are destroyed, but resistant types survive and multiply.

To avoid the side effect of antibiotics, you'd better not urge your doctor to prescribe antibiotics. Keep in mind that antibiotics are only useful for bacterial infections and have no effect on viruses, so they cannot be used for children pox, measles, and other viral diseases.

1. What is the topic of the text?
   a. Magic bullet
   b. Antibiotics
   c. Drug
   d. Microbes

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

    a. Antibiotics is a compound

    b. Antibiotics is good for medication

    c. Antibiotics is not good for fungi

    d. Antibiotics kill without injuring its suffers

3. The antonym of 'wide' is ...

    a. Large

    b. Light

    c. Narrow

    d. Dark

4. Choose one from the following which is not the effect of using antibiotics improperly?

    a. New infection which is called super infection develops

    b. Harmiess microorganism are destroyed

    c. The pathogenic microbes multiply

    d. Pathogenic microbes become non-resistant

5. The antonym of 'new' is ...

    a. Wide

    b. Smart

    c. Old

    d. Beautiful

6. Which diseases cannot be cured by antibiotics?

    a. Scarlet fever

    b. Meningitis

    c. Tuberculosis

    d. Chicken pox

7. What is used to treat tuberculosis ?

    a. Diseases

    b. Drugs

    c. Antibiotics

d. Streptomycin

8. Antibiotic is .....

   a. A drug produced by certain microbes

   b. A drug produced by mushroom

   c. A drug produced by tuberculosis

   d. A drug produced by certain streptomycin

9. Resitance to antibiotics may be acquired by ....

   a. Pathogenic

   b. Pathogenic microbes

   c. Microbes

   d. Pathogenic mushroom

10. Extensive use of some antibiotics may damage organs and tissues. The antonym of underline word is ....

   a. Intensive

   b. External

   c. Internal

   d. Damage

11. The main idea of the third paragraph is ...

   a. Resistance to antibiotics may be acquired by viruses

   b. Resistance to antibiotics may be acquired by pathogenic microbes

   c. The effects of misusing antibiotics can damage organs and tissue

   d. Antibiotic is drug produced by certain microbes

12. Antibiotics are sometimes called .....

   a. Microbes

   b. Diseases

   c. Wonder drugs

   d. Wonder microbes

13. "They are used to treat a wide variety of diseases, including gonorrhea, tonsillitis and tuberculosis" (in paragraph 1). The word "they" refers to?

   a. Drugs

b. Microbes

c. Humans

d. Antibiotics

e. Pathogenic microbes

14. Antibiotics do not always distinguish between ...

a. Dangerous and benefit microbes

b. Harmless and benefit microbes

c. Harmless and dangerous pneumonia

d. Harmless and dangerous microbes

15. What is the conclusion of the text?

a. Antibiotics are only useful for bacterial infections and have not effect on viruses

b. Antibiotics do not always distinguish between harmless and dangerous microbes

c. Antibiotics called wonder drugs

d. Antibiotics acquired by pathogenic microbes

16. Why an antibiotics called wonder drugs?

a. Because they can damage

b. Because they can benefit

c. Because they can cure diseases

d. Because they can destroy other microbes

17. Antibiotics <u>destroy</u> other microbes that damage human tissues. The antonym of underline word is ....

a. Built

b. Damage

c. Develop

d. Save

Reading passage 2 for number 18-32

Whales are sea-living mammals. They therefore breathe air but can not survive on land.

Some species are very large the black whales and the blue whales, which can exceed 30 meters in length, is the largest animal to have lived on earth. Superfically, the whales looks rather like a fish, but there are important differences in its body structure; its tail consist of a pair of broad, flat horizontal paddles (the tail of a fish is vertical) and it has a single nostril on top of its large, broad head. The skin is smooth and shiny and beneath it lies a layer of fat (blubber). It can be up to 30 meters in thickness and serves to conserve heat and body whales.

18. What is the text about?
    a. Sea-living mammals
    b. The description of mammals
    c. The difference between whales and fish
    d. Whales
    e. How whales survive themselves

19. The word "They" in second sentence refers to?
    a. Mammals
    b. Whales
    c. Species
    d. Animal
    e. The skin of whales

20. How length is a whale's body?
    a. 30 meters
    b. 3 meters
    c. 300 meters
    d. 3000 meters

21. It can be up to 30 meters in thickness and serves to conserve heat and body whales. The word 'it' refers to ?
    a. Whales

b. The skin

c. The body

d. The species

22. Where is can not whale's survive?

    a. On sea

    b. On air

    c. On land

    d. On beach

23. The antonym of 'large' is ...

    a. Bright

    b. Strong

    c. Narrow

    d. Dirty

24. The skin is <u>smooth</u> and shiny and beneath it lies a layer of fat (blubber).

    The synomym of underline word is ....

    a. Hard

    b. Soft

    c. Coarse

    d. Clean

25. How thickness is a whale's skin?

    a. 3 meters

    b. 30 meters

    c. 35 meters

    d. 3 centimeters

    e. 300 meters

26. Based on the text, some species of Whales. They are ?

    a. Black and pink Whales

    b. Black and blue Whales

    c. Blue and green Whales

    d. Black and yellow Whales

27. The second paragraph tell about ...

    a. Charateristics of Whales

    b. Spesies of Whales

    c. Benefit of Whales

    d. The skin of Whales

28. How is the Whale's skin ?

    a. Smooth and shiny

    b. Dark and smooth

    c. Shiny and dark

    d. Hard and shiny

29. The skin is smooth and <u>shiny</u>. The antonym of underlined word is....

    a. Bright

    b. Hard

    c. Beautiful

    d. Pallid

30. How is the whale's tail?

    a. The tail consist a pair of broad, and flat vertical paddles

    b. The tail consist a pair of broad, and flat horizontal paddles

    c. The tail is vertical and single

    d. The tail is horizontal and single

31. What is the conclusion of the text?

    a. The skin of whales is smooth and shiny

    b. Whale looks rather like a fish

    c. Whales are sea-living mammals

    d. Whales can exceed 300m in length

    e. Tail of whales consist of a pair of broad

32. It can be up to 30 meters in <u>thickness</u> and serves to conserve heat and body whales. The antonym of underline word is ...

    a. Highest

    b. Thinness

c. Illness

d. Tallest

Reading passage 3 for number 33-50

Long time ago, the Sun and the Moon lived happily together in the sky. They always appeared together during the day and night.

One day, the Sun shone brightly so that it almost burned the Moon. The sunlight hurt the Moon's eyes very much. This made the Moon blind.

The Moon let the Sun although the Sun had apologized to the Moon.

The Sun loved the Moon very much, so he chased her. He chased and chased through the years and centuries but has never caught the Moon.

That's why the Sun shines during the day and at night the Moon appears. They will never reunite again.

33. The topic of the text is ...

    a. Why do the Sun and the Moon always appear together?

    b. Why do the Moon and the Sun never die together?

    c. Why do the Moon and the Sun never appear together?

    d. Why do the Moon appear?

34. They always appeared together during the day and night. The word 'they' refers to?

    a. The Moon and the Sun

    b. The Sun and the Star

    c. The Sun and the Sky

    d. The Moon and the Planet

35. So, he chased her. The word 'her' refers to?

    a. The Star

    b. The Sky

    c. The Moon

    d. The Sun

36. He chased and chased through the years and centuries but has never caught the Moon. Who is 'he' in the sentence ?

  a. The Moon

  b. The Sun

  c. The Sky

  d. The Hawk

37. Who chased the Moon?

  a. Sun

  b. Earth

  c. Sky

  d. Clouds

38. Who was apologized to the Moon?

  a. The Moon

  b. The Sun

  c. The Star

  d. The Night

39. They will never reunite again. Who is 'they' in the underline word?

  a. The Sun and the Sky

  b. The Moon and the Star

  c. The Sun and the Moon

  d. The Sun and the Moon's eyes

40. Who shines during at the day?

  a. Moon

  b. Star

  c. Planet

  d. Sun

41. The main idea of the fourth paragraph is ...

  a. The Moon loved the Sun very much

  b. The Sun shone brightly so that it almost burned the Moon

  c. The Sun apoloziged to the Moon

d. The Sun loved the Moon very much

42. Who shines during at night?

   a. Sun

   b. Moon

   c. Star

   d. Sky

43. So <u>he</u> chased her. The word 'he' refers to?

   a. The Sun

   b. The Sky

   c. The Moon

   d. The Star

44. The synonym of 'shine' is ....

   a. Light

   b. Shone

   c. Pallid

   d. Dark

45. When did this story happen?

   a. Two week ago

   b. Last year

   c. Long time ago

   d. Last night

46. The main idea of the third paragraph is ....

   a. The Moon's eyes blind

   b. The Moon let the Sun

   c. The Sun let the Moon

   d. The Sun chased the Moon

47. The Sun shone <u>brightly</u> so that it almost burned the Moon. The antonym of underline word is ....

   a. Lightly

   b. Darkly

c. Brightness

d. Darkness

48. Who was love the Moon?

    a. The Star

    b. The Sky

    c. The Sun

    d. The Planet

49. Why the Moon let the Sun?

    a. Because the Sun loved the Moon

    b. Because the Sunlight hurt the Moon's eyes and made her blind.

    c. Because the Sun made the Moon blind

    d. Because the Moon loved the Sun

50. By reading the text, we can conclude that ....

    a. The Sun and the Moon always appeared together
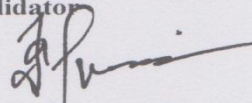
    b. The Sun and the Moon will never let you go

    c. The Sun and the Moon will never reunite again

    d. The Sun and the Moon always together at the day and night

Padangsidimpuan, 06 September 2017
Validator

Afnita Warni, S.Pd.
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Appendix 5

ANSWER KEY

PRE TEST

1. C	11. B	21. A	31. B	41. C
2. C	12. B	22. B	32. A	42. D
3. D	13. C	23. C	33. B	43. C
4. A	14. B	24. D	34. A	44. B
5. C	15. B	25. B	35. D	45. A
6. A	16. D	26. C	36. A	46. C
7. C	17. B	27. D	37. B	47. B
8. C	18. A	28. C	38. A	48. A
9. D	19. B	29. C	39. C	49. B
10. B	20. C	30. B	40. B	50. B

POST TEST

1. B	11. B	21. B	31. C	41. D
2. B	12. C	22. C	32. B	42. B
3. C	13. D	23. D	33. C	43. A
4. C	14. D	24. B	34. A	44. A
5. C	15. A	25. B	35. C	45. C
6. D	16. C	26. B	36. B	46. B
7. D	17. A	27. A	37. A	47. B
8. A	18. D	28. A	38. B	48. C
9. B	19. B	29. D	39. C	49. B
10. A	20. A	30. B	40. D	50. C

Appendix 6

Validity of Pre Test

No	NUMBER OF ITEMS																																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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7	1	1	0	1	1	1	0	1	1	0	1	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1	0	1	1
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13	1	0	0	1	1	1	1	1	0	0	0	1	0	1	1	0	0	0	1	0	1	1	0	0	1	0	1	0	1	1	1	1	0	1	1	1	0	0	1	0
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22	0	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	1	0	0	1	0	0	1	0	1	1	0	1	0	0	1	1	1	0	1	0	0	1	1	1
23	0	0	1	0	0	0	0	0	0	1	0	1	1	1	0	0	0	1	0	0	1	1	0	1	1	0	1	1	0	0	0	0	1	1	1	0	0	1	0	0
N = 23	16	15	6	18	16	16	15	18	15	18	18	18	8	19	16	16	15	6	16	16	15	18	16	18	20	18	18	5	13	14	17	19	7	15	16	18	16	6	16	16
P	0,7	0,7	0,2	0,8	0,7	0,7	0,7	0,8	0,7	0,8	0,8	0,8	0,3	0,8	0,7	0,7	0,7	0,3	0,7	0,7	0,7	0,8	0,7	0,8	0,9	0,8	0,8	0,2	0,6	0,6	0,8	0,8	0,3	0,7	0,7	0,8	0,7	0,3	0,7	0,7
Q	0,3	0,3	0,8	0,2	0,3	0,3	0,3	0,2	0,3	0,2	0,2	0,2	0,7	0,2	0,3	0,3	0,3	0,7	0,3	0,3	0,3	0,2	0,3	0,2	0,1	0,2	0,2	0,8	0,4	0,4	0,2	0,2	0,7	0,3	0,3	0,2	0,3	0,7	0,3	0,3

Cont....

Validity of Pre Test

No	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	Xt	Xt^2
1	1	0	1	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0	1	1	1	1	0	0	0	0	1	1	46	2116
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3	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	1	0	1	1	1	1	1	45	2025
4	1	1	1	0	1	0	1	1	1	1	0	1	1	1	0	1	0	1	0	0	1	0	1	1	1	0	1	1	1	1	47	2209
5	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	1	1	30	900
6	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	0	0	1	1	0	1	46	2116
7	1	1	1	1	0	0	1	1	1	1	1	1	1	1	0	0	1	0	1	0	1	0	1	1	1	1	1	1	1	1	48	2304
8	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	0	0	1	1	1	51	2601
9	1	1	1	1	0	0	0	0	0	1	1	0	0	1	0	1	1	0	0	0	1	0	1	0	1	0	0	1	1	0	37	1369
10	0	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	0	0	0	1	1	1	1	1	41	1681
11	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	1	0	0	0	23	529
12	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1	1	0	0	1	1	1	1	48	2304
13	1	0	0	0	0	0	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	0	0	1	0	0	1	0	1	1	37	1369
14	1	1	1	1	1	0	0	1	1	0	1	1	1	0	1	1	1	0	0	0	1	0	1	1	1	0	1	1	0	0	42	1764
15	0	1	1	0	0	0	1	1	0	1	1	1	0	1	0	0	1	1	0	0	1	0	1	1	0	0	1	0	1	1	34	1156
16	1	0	0	0	1	0	0	1	1	1	1	1	0	0	0	1	1	0	0	0	1	1	0	1	0	1	1	1	1	0	37	1369
17	1	1	1	1	1	0	1	1	1	1	0	0	1	0	1	0	1	1	0	0	1	0	0	0	0	0	1	1	0	0	42	1764
18	1	0	0	1	1	0	0	1	1	0	1	0	0	1	0	0	1	1	0	0	1	0	1	0	0	0	1	0	1	1	36	1196
19	0	1	1	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	0	1	1	1	0	1	1	1	0	43	1849
20	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	34	1156
21	1	1	0	1	1	0	0	1	1	1	1	1	1	0	0	1	1	1	0	0	0	0	1	1	0	0	1	0	1	1	39	1321
22	1	1	0	0	0	0	1	0	1	1	0	1	1	1	1	0	1	1	0	0	0	1	0	0	0	1	1	1	0	0	34	1156
23	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	0	1	0	0	0	25	625
N=23	16	15	14	13	12	5	16	19	16	17	16	18	14	15	4	16	18	15	4	4	14	6	15	14	7	6	18	15	16	14	∑xt = 902	∑xt² = 36248
p	0,7	0,7	0,6	0,6	0,5	0,2	0,7	0,8	0,7	0,7	0,7	0,8	0,6	0,7	0,2	0,7	0,8	0,7	0,2	0,2	0,6	0,3	0,7	0,6	0,3	0,3	0,8	0,7	0,7	0,6		
q	0,3	0,3	0,4	0,4	0,5	0,8	0,3	0,2	0,3	0,3	0,3	0,2	0,4	0,3	0,8	0,3	0,2	0,3	0,8	0,8	0,4	0,7	0,3	0,4	0,7	0,7	0,2	0,3	0,3	0,4		

Appendix 7

Calculation of $r_{pbi} = \dfrac{M_p - M_t}{SD_t} \sqrt{\dfrac{p}{q}}$ **in Pre Test**

A. Calculation of Pre-Test

1. Means score from score total (M_t)

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

$$M_t = \frac{902}{23} = 39.21$$

2. Standard Deviation (SD_t)

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

$$SD_t = \sqrt{\frac{36248}{23} - \left(\frac{902}{23}\right)^2}$$

$$SD_t = \sqrt{1576 - 39.21^2}$$

$$SD_t = \sqrt{1576 - 1537.42} = \sqrt{38.58} = 6.21$$

3. Means Score (M_p)

Item 1 $M_{p1} = \dfrac{\text{the total of students score that true item answer}}{n1}$

$$M_{p1} = \frac{46+37+47+30+46+48+51+37+48+42+34+37+42+43+34+39}{16}$$

$$M_{p1} = \frac{661}{16} = 41.31$$

Item 2 $M_{p2} = \dfrac{\text{the total of students score that answer true item}}{n2}$

$$M_{p2} = \frac{46+37+47+30+46+48+37+41+48+42+34+42+43+34+39}{15}$$

$$M_{p2} = \frac{614}{15} = 40.93$$

Item 3 $M_{p3} = \dfrac{\text{the total of students score that answer true item}}{n3}$

$$M_{p3} = \frac{46+51+41+36+34+25}{6}$$

$$M_{p3} = \frac{233}{6} = 38.83$$

Item 4 $M_{p4} = \dfrac{\text{the total of students score that answer true item}}{n4}$

$$M_{p4} = \frac{46+37+45+47+30+48+51+37+48+37+42+34+37+36+42+43+39+34}{18}$$

$$M_{p4} = \frac{733}{18} = 40.72$$

Item 5 $M_{p5} = \dfrac{\text{the total of students score that answer true item}}{n5}$

$$M_{p5} = \frac{46+37+45+47+46+48+51+37+48+37+34+37+42+34+39+34}{16}$$

$$M_{p5} = \frac{662}{16} = 41.37$$

Item 6 $M_{p6} = \dfrac{\text{the total of students score that answer true item}}{n6}$

$M_{p6} = \dfrac{46+37+45+47+30+46+48+51+37+41+48+37+34+36+43+34}{16}$

$M_{p6} = \dfrac{660}{16} = 41.25$

Item 7 $M_{p7} = \dfrac{\text{the total of students score that answer true item}}{n7}$

$M_{p7} = \dfrac{45+47+46+51+37+48+37+42+34+37+42+43+34+39+34}{15}$

$M_{p7} = \dfrac{616}{15} = 41.06$

Item 8 $M_{p8} = \dfrac{\text{the total of students score that answer true item}}{n8}$

$M_{p8} = \dfrac{46+37+45+47+30+46+48+51+37+41+48+37+34+37+36+43+39+34}{18}$

$M_{p8} = \dfrac{736}{18} = 40.88$

Item 9 $M_{p9} = \dfrac{\text{the total of students score that answer true item}}{n9}$

$M_{p9} = \dfrac{46+45+47+30+48+51+37+41+48+42+34+37+42+43+34}{15}$

$M_{p9} = \dfrac{625}{15} = 41.66$

Item 10 $M_{p10} = \dfrac{\text{the total of students score that answer true item}}{n10}$

$M_{p10} = \dfrac{46+37+45+47+30+46+48+51+37+41+48+42+34+37+43+39+34+25}{18}$

$M_{p10} = \dfrac{730}{18} = 40.56$

Item 11 $M_{p11} = \dfrac{\text{the total of students score that answer true item}}{n11}$

$M_{p11} = \dfrac{46+37+45+47+46+51+37+41+48+42+34+37+42+36+43+34+39+34}{18}$

$M_{p11} = \dfrac{739}{18} = 41.05$

Item 12 $M_{p12} = \dfrac{46+45+47+30+46+48+51+41+48+37+42+34+42+36+43+39+34+25}{18}$

$M_{p12} = \dfrac{734}{18} = 40.77$

Item 13 $M_{p13} = \dfrac{46+37+48+42+42+43+34+25}{8}$

$M_{p13} = \dfrac{317}{8} = 39.62$

Item 14 $M_{p14} = \dfrac{46+37+45+47+30+46+48+51+37+48+37+34+37+42+36+34+39+34+25}{19}$

$$M_{p14} = \frac{773}{19} = 40.68$$

Item 15 $M_{p15} = \frac{46+37+45+47+48+51+41+48+37+34+37+42+36+43+34+39}{16}$

$$M_{p15} = \frac{665}{16} = 41.56$$

Item 16 $M_{p16} = \frac{46+45+47+30+46+48+51+41+48+42+34+42+36+34+39+34}{16}$

$$M_{p16} = \frac{663}{16} = 41.43$$

Item 17 $M_{p17} = \frac{46+37+45+47+46+48+37+48+42+34+42+36+34+39+34}{15}$

$$M_{p17} = \frac{615}{15} = 41$$

Item 18 $M_{p18} = \frac{37+41+34+42+43+25}{6}$

$$M_{p18} = \frac{222}{6} = 37$$

Item 19 $M_{p19} = \frac{46+37+45+47+46+48+51+37+23+48+37+42+34+37+42+36}{16}$

$$M_{p19} = \frac{656}{16} = 41$$

Item 20 $M_{p20} = \frac{45+47+30+46+48+51+41+48+42+34+37+42+43+34+39+34}{16}$

$$M_{p20} = \frac{661}{16} = 41.31$$

Item 21 $M_{p21} = \frac{46+37+47+51+37+41+48+37+42+34+42+36+43+39+25}{15}$

$$M_{p21} = \frac{605}{15} = 41.33$$

Item 22 $M_{p22} = \frac{46+37+45+47+46+48+51+37+41+48+37+42+37+42+36+43+34+25}{18}$

$$M_{p22} = \frac{743}{18} = 41.27$$

Item 23 $M_{p23} = \frac{46+45+47+30+46+48+37+41+48+42+34+37+42+43+39+34}{16}$

$$M_{p23} = \frac{659}{16} = 41.18$$

Item 24 $M_{p24} = \frac{37+45+47+30+46+48+51+37+41+48+42+34+37+42+36+43+34+39}{18}$

$$M_{p24} = \frac{737}{18} = 40.94$$

Item 25 $M_{p25} = \dfrac{\substack{46+37+45+47+30+46+48+51+37+\\41+48+37+42+34+37+36+43+39+34+25}}{20}$

$M_{p25} = \dfrac{803}{20} = 40.15$

Item 26 $M_{p26} = \dfrac{46+37+45+47+46+48+51+37+41+23+48+42+37+42+36+34+39+34}{18}$

$M_{p26} = \dfrac{733}{18} = 40.72$

Item 27 $M_{p27} = \dfrac{46+37+45+47+30+46+48+51+37+23+48+37+42+34+42+36+43+39}{18}$

$M_{p27} = \dfrac{731}{18} = 40.61$

Item 28 $M_{p28} = \dfrac{48+42+43+34+25}{5}$

$M_{p28} = \dfrac{192}{5} = 38.4$

Item 29 $M_{p29} = \dfrac{46+37+45+47+48+51+37+41+48+37+42+42+39}{13}$

$M_{p29} = \dfrac{560}{13} = 43.07$

Item 30 $M_{p30} = \dfrac{46+45+47+48+51+37+41+48+37+34+37+42+42+39}{14}$

$M_{p30} = \dfrac{594}{14} = 42.42$

Item 31 $M_{p31} = \dfrac{46+37+45+47+30+46+48+51+41+48+37+34+42+36+43+34+34}{17}$

$M_{p31} = \dfrac{699}{17} = 41.11$

Item 32 $M_{p32} = \dfrac{46+45+47+30+46+48+51+41+23+48+42+34+37+42+36+43+34+39+34}{19}$

$M_{p32} = \dfrac{766}{19} = 40.84$

Item 33 $M_{p33} = \dfrac{30+48+51+41+34+34+25}{7}$

$M_{p33} = \dfrac{263}{7} = 37.57$

Item 34 $M_{p34} = \dfrac{46+37+47+51+37+41+48+37+42+34+42+36+43+39+25}{15}$

$M_{p34} = \dfrac{615}{15} = 41$

Item 35 $M_{p35} = \dfrac{46+37+45+47+46+51+41+48+37+42+37+42+36+43+39+25}{16}$

$M_{p35} = \dfrac{662}{16} = 41.37$

Item 36 $M_{p36} = \dfrac{46+37+45+47+30+46+48+51+41+23+48+37+42+34+37+42+36+39}{18}$

$\qquad M_{p36} = \dfrac{729}{18} = 40.5$

Item 37 $M_{p37} = \dfrac{37+45+47+30+46+48+51+37+41+48+42+34+37+43+34+39}{16}$

$\qquad M_{p37} = \dfrac{659}{16} = 41.18$

Item 38 $M_{p38} = \dfrac{46+41+42+43+34+25}{6}$

$\qquad M_{p38} = \dfrac{231}{6} = 38.5$

Item 39 $M_{p39} = \dfrac{46+45+47+46+48+51+37+23+48+37+34+37+42+43+39+34}{16}$

$\qquad M_{p39} = \dfrac{657}{16} = 41.06$

Item 40 $M_{p40} = \dfrac{46+45+47+30+46+48+51+41+48+42+34+37+42+43+34+34}{16}$

$\qquad M_{p40} = \dfrac{668}{16} = 41.75$

Item 41 $M_{p41} = \dfrac{46+45+47+46+48+51+37+23+48+42+37+42+36+34+39+34}{16}$

$\qquad M_{p41} = \dfrac{655}{16} = 40.93$

Item 42 $M_{p42} = \dfrac{37+47+46+48+51+37+41+48+42+34+42+43+34+39+34}{15}$

$\qquad M_{p42} = \dfrac{623}{15} = 41.53$

Item 43 $M_{p43} = \dfrac{46+37+47+46+48+51+41+23+48+42+34+42+43+34}{14}$

$\qquad M_{p43} = \dfrac{582}{14} = 41.57$

Item 44 $M_{p44} = \dfrac{46+37+45+48+51+37+41+48+42+42+36+34+39}{13}$

$\qquad M_{p44} = \dfrac{546}{13} = 42$

Item 45 $M_{p45} = \dfrac{46+45+47+51+41+48+42+37+42+36+34+39}{12}$

$\qquad M_{p45} = \dfrac{508}{12} = 42.33$

Item 46 $M_{p46} = \dfrac{46+51+23+34+25}{5}$

$\qquad M_{p46} = \dfrac{179}{5} = 35.8$

Item 47 $M_{p47} = \dfrac{46+37+45+47+46+48+51+41+23+48+37+34+42+43+34+34}{16}$

$$M_{p47} = \frac{656}{16} = 41$$

Item 48 $M_{p48} = \frac{46+37+45+47+30+46+48+51+41+48+37+42+34+37+42+36+43+34+39}{19}$

$$M_{p48} = \frac{783}{19} = 41.21$$

Item 49 $M_{p49} = \frac{46+45+47+46+48+51+41+48+37+42+37+42+36+43+39+34}{16}$

$$M_{p49} = \frac{682}{16} = 42.62$$

Item 50 $M_{p50} = \frac{46+37+45+47+46+48+51+37+41+48+37+34+37+42+43+39+34}{17}$

$$M_{p50} = \frac{712}{17} = 41.88$$

Item 51 $M_{p51} = \frac{46+37+45+30+48+51+37+41+48+42+34+37+36+43+34+39}{16}$

$$M_{p51} = \frac{658}{16} = 41.12$$

Item 52 $M_{p52} = \frac{46+37+45+47+30+46+48+51+41+48+37+42+34+37+43+34+39+34}{18}$

$$M_{p52} = \frac{739}{18} = 41.05$$

Item 53 $M_{p53} = \frac{46+45+47+46+48+51+41+48+37+42+42+43+39+34}{14}$

$$M_{p53} = \frac{609}{14} = 43.5$$

Item 54 $M_{p54} = \frac{45+47+46+48+51+37+41+48+37+34+42+36+43+34+34}{15}$

$$M_{p54} = \frac{623}{15} = 41.53$$

Item 55 $M_{p55} = \frac{46+48+42+34}{4}$

$$M_{p55} = \frac{170}{4} = 42.5$$

Item 56 $M_{p56} = \frac{46+37+45+47+30+51+37+41+48+37+42+37+42+43+34+39}{16}$

$$M_{p56} = \frac{656}{16} = 41$$

Item 57 $M_{p57} = \frac{46+37+45+46+48+51+37+41+48+37+42+34+37+42+36+34+39+34}{18}$

$$M_{p57} = \frac{734}{18} = 40.77$$

Item 58 $M_{p58} = \frac{46+45+47+46+51+41+48+37+34+37+42+36+34+39+34}{15}$

$$M_{p58} = \frac{617}{15} = 41.13$$

Item 59 $M_{p59} = \frac{48+41+48+25}{4}$

$M_{p59} = \frac{162}{4} = 40.5$

Item 60 $M_{p60} = \frac{46+51+37+25}{4}$

$M_{p60} = \frac{159}{4} = 39.75$

Item 61 $M_{p61} = \frac{46+37+47+48+51+37+41+48+37+42+34+42+36+43}{14}$

$M_{p61} = \frac{589}{14} = 42.07$

Item 62 $M_{p62} = \frac{46+46+48+37+34+25}{6}$

$M_{p62} = \frac{236}{6} = 39.33$

Item 63 $M_{p63} = \frac{46+47+30+46+48+51+37+41+48+42+34+37+36+43+39}{15}$

$M_{p63} = \frac{625}{15} = 41.66$

Item 64 $M_{p64} = \frac{46+37+45+47+30+46+48+51+48+37+42+34+43+39}{14}$

$M_{p64} = \frac{593}{14} = 42.35$

Item 65 $M_{p65} = \frac{47+48+37+42+37+43+25}{7}$

$M_{p65} = \frac{279}{7} = 39.85$

Item 66 $M_{p66} = \frac{45+48+41+23+34+25}{6}$

$M_{p66} = \frac{216}{6} = 36$

Item 67 $M_{p67} = \frac{37+45+47+46+48+51+41+23+48+37+42+34+37+42+36+43+39+34}{18}$

$M_{p67} = \frac{730}{18} = 40.55$

Item 68 $M_{p68} = \frac{45+47+46+48+51+37+41+48+42+37+42+43+34+34+25}{15}$

$M_{p68} = \frac{620}{15} = 41.33$

Item 69 $M_{p69} = \frac{46+37+45+47+30+48+51+37+41+48+37+34+37+36+43+39}{16}$

$M_{p69} = \frac{656}{16} = 41$

Item 70 $M_{p70} = \dfrac{46+37+45+47+30+46+48+51+41+48+37+34+36+39}{14}$

$M_{p70} = \dfrac{585}{14} = 41.78$

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

Item 1 $r_{pbi} = \frac{41.31 - 39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{2.1}{6.2}\sqrt{2.33}$

$r = 0.338 \text{ x } 1.52 = 0.5137$

Item 2 $r_{pbi} = \frac{40.93 - 39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.72}{6.2}\sqrt{2.33}$

$r = 0.277 \text{ x } 1.52 = 0.421$

Item 3 $r_{pbi} = \frac{38.83 - 39.21}{6.2}\sqrt{\frac{0.2}{0.8}}$

$r = \frac{-0.38}{6.2}\sqrt{0.25}$

$r = -0.061 \text{ x } 0.5 = -0.0305$

Item 4 $r_{pbi} = \frac{40.72 - 39.21}{6.2}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.51}{6.2}\sqrt{4}$

$r = 0.243 \text{ x } 2 = 0.486$

Item 5 $r_{pbi} = \frac{41.37 - 39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{2.16}{6.2}\sqrt{2.33}$

$r = 0.348 \text{ x } 1.52 = 0.528$

Item 6 $r_{pbi} = \frac{41.25 - 39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{2.04}{6.2}\sqrt{2.33}$

$r = 0.329 \text{ x } 1.52 = 0.500$

Item 7 $r_{pbi} = \frac{41.06 - 39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.85}{6.2}\sqrt{2.33}$

$r = 0.298 \text{ x } 1.52 = 0.452$

Item 8 $r_{pbi} = \frac{40.88 - 39.21}{6.2}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.67}{6.2}\sqrt{4}$

$$r = 0.269 \text{ x } 2 = 0.538$$

Item 9 $r_{pbi} = \dfrac{41.66 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$\qquad r = \dfrac{2.45}{6.2} \sqrt{2.33}$

$\qquad r = 0.395 \text{ x } 1.52 = 0.6004$

Item 10 $r_{pbi} = \dfrac{40.56 - 39.21}{6.2} \sqrt{\dfrac{0.8}{0.2}}$

$\qquad r = \dfrac{1.35}{6.2} \sqrt{4}$

$\qquad r = 0.217 \text{ x } 2 = 0.434$

Item 11 $r_{pbi} = \dfrac{41.05 - 39.21}{6.2} \sqrt{\dfrac{0.8}{0.2}}$

$\qquad r = \dfrac{1.84}{6.2} \sqrt{4}$

$\qquad r = 0.296 \text{ x } 2 = 0.592$

Item 12 $r_{pbi} = \dfrac{40.77 - 39.21}{6.2} \sqrt{\dfrac{0.8}{0.2}}$

$\qquad r = \dfrac{1.56}{6.2} \sqrt{4}$

$\qquad r = 0.251 \text{ x } 2 = 0.502$

Item 13 $r_{pbi} = \dfrac{39.62 - 39.21}{6.2} \sqrt{\dfrac{0.3}{0.7}}$

$\qquad r = \dfrac{0.41}{6.2} \sqrt{0.42}$

$\qquad r = 0.066 \text{ x } 0.64 = 0.042$

Item 14 $r_{pbi} = \dfrac{40.68 - 39.21}{6.2} \sqrt{\dfrac{0.8}{0.2}}$

$\qquad r = \dfrac{1.47}{6.2} \sqrt{4}$

$\qquad r = 0.237 \text{ x } 2 = 0.474$

Item 15 $r_{pbi} = \dfrac{41.56 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$\qquad r = \dfrac{2.35}{6.2} \sqrt{2.33}$

$\qquad r = 0.379 \text{ x } 1.52 = 0.576$

Item 16 $r_{pbi} = \dfrac{41.43 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$$r = \frac{2.22}{6.2} \sqrt{2.33}$$

$$r = 0.358 \times 1.52 = 0.544$$

Item 17 $r_{pbi} = \frac{41 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.79}{6.2} \sqrt{2.33}$$

$$r = 0.288 \times 1.52 = 0.437$$

Item 18 $r_{pbi} = \frac{37 - 39.21}{6.2} \sqrt{\frac{0.3}{0.7}}$

$$r = \frac{-2.21}{6.2} \sqrt{0.42}$$

$$r = -0.356 \times 0.64 = -0.227$$

Item 19 $r_{pbi} = \frac{41 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.79}{6.2} \sqrt{2.33}$$

$$r = 0.288 \times 1.52 = 0.437$$

Item 20 $r_{pbi} = \frac{41.31 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.1}{6.2} \sqrt{2.33}$$

$$r = 0.338 \times 1.52 = 0.513$$

Item 21 $r_{pbi} = = \frac{41.33 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.12}{6.2} \sqrt{2.33}$$

$$r = 0.341 \times 1.52 = 0.518$$

Item 22 $r_{pbi} = \frac{41.27 - 39.21}{6.2} \sqrt{\frac{0.8}{0.2}}$

$$r = \frac{2.06}{6.2} \sqrt{4}$$

$$r = 0.332 \times 2 = 0.664$$

Item 23 $r_{pbi} = \frac{41.18 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.97}{6.2} \sqrt{2.33}$$

$$r = 0.317 \times 1.52 = 0.4818$$

Item 24 $r_{pbi} = \frac{40.94 - 39.21}{6.2} \sqrt{\frac{0.8}{0.2}}$

$$r = \frac{1.73}{6.2}\sqrt{4}$$
$$r = 0.279 \text{ x } 2 = 0.558$$

Item 25 $r_{pbi} = \frac{40.15-39.21}{6.2}\sqrt{\frac{0.9}{0.3}}$
$$r = \frac{0.94}{6.2}\sqrt{9}$$
$$r = 0.151 \text{ x } 3 = 0.454$$

Item 26 $r_{pbi} = \frac{40.72-39.21}{6.2}\sqrt{\frac{0.8}{0.2}}$
$$r = \frac{1.51}{6.2}\sqrt{4}$$
$$r = 0.243 \text{ x } 2 = 0.487$$

Item 27 $r_{pbi} = \frac{40.61-39.21}{6.2}\sqrt{\frac{0.8}{0.2}}$
$$r = \frac{1.4}{6.2}\sqrt{4}$$
$$r = 0.225 \text{ x } 2 = 0.45$$

Item 28 $r_{pbi} = \frac{38.4-39.21}{6.2}\sqrt{\frac{0.2}{0.8}}$
$$r = \frac{-0.81}{6.2}\sqrt{0.25}$$
$$r = \text{-0.1306 x 0.5} = \text{-0.065}$$

Item 29 $r_{pbi} = \frac{43.07-39.21}{6.2}\sqrt{\frac{0.6}{0.4}}$
$$r = \frac{3.86}{6.2}\sqrt{1.5}$$
$$r = 0.622 \text{ x } 1.2 = 0.746$$

Item 30 $r_{pbi} = \frac{42.42-39.21}{6.2}\sqrt{\frac{0.6}{0.4}}$
$$r = \frac{3.21}{6.2}\sqrt{1.5}$$
$$r = 0.517 \text{ x } 1.2 = 0.621$$

Item 31 $r_{pbi} = \frac{41.11-39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$
$$r = \frac{1.9}{6.2}\sqrt{2.33}$$
$$r = 0.306 \text{ x } 1.52 = 0.465$$

Item 32 $r_{pbi} = \frac{40.31-39.21}{6.2}\sqrt{\frac{0.8}{0.2}}$

$$r = \frac{1.63}{6.2}\sqrt{4}$$
$$r = 0.262 \text{ x } 2 = 0.524$$

Item 33 $r_{pbi} = \frac{37.57-39.21}{6.2}\sqrt{\frac{0.3}{0.7}}$

$$r = \frac{-1.638}{6.2}\sqrt{0.42}$$
$$r = \text{-0.264 x 0.64 = -0.168}$$

Item 34 $r_{pbi} = \frac{41-39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.79}{6.2}\sqrt{2.33}$$
$$r = 0.288 \text{ x } 1.52 = 0.4388$$

Item 35 $r_{pbi} = = \frac{41.37-39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.16}{6.2}\sqrt{2.33}$$
$$r = 0.348 \text{ x } 1.52 = 0.529$$

Item 36 $r_{pbi} = = \frac{40.5-39.21}{6.2}\sqrt{\frac{0.8}{0.2}}$

$$r = \frac{1.29}{6.2}\sqrt{4}$$
$$r = 0.208 \text{ x } 2 = 0.416$$

Item 37 $r_{pbi} = \frac{41.18-39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.97}{6.2}\sqrt{2.33}$$
$$r = 0.317 \text{ x } 1.52 = 0.4818$$

Item 38 $r_{pbi} = \frac{38.5-39.21}{6.2}\sqrt{\frac{0.3}{0.7}}$

$$r = \frac{-0.71}{6.2}\sqrt{0.42}$$
$$r = \text{-0.114 x 0.64 = -0.073}$$

Item 39 $r_{pbi} = \frac{41.06-39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.85}{6.2}\sqrt{2.33}$$
$$r = 0.298 \text{ x } 1.52 = 0.4529$$

Item 40 $r_{pbi} = \frac{41.75-39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.54}{6.2}\sqrt{2.33}$$
r = 0.409 x 1.52 = 0.621

Item 41 $r_{pbi} = \frac{40.93-39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.72}{6.2}\sqrt{2.33}$$
r = 0.277 x 1.52 = 0.421

Item 42 $r_{pbi} = \frac{41.53-39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.32}{6.2}\sqrt{2.33}$$
r = 0.374 x 1.52 = 0.568

Item 43 $r_{pbi} = \frac{41.57-39.21}{6.2}\sqrt{\frac{0.6}{0.4}}$

$$r = \frac{3.36}{6.2}\sqrt{1.5}$$
r = 0.380 x 1.2 = 0.456

Item 44 $r_{pbi} = \frac{42-39.21}{6.2}\sqrt{\frac{0.5}{0.5}}$

$$r = \frac{2.79}{6.2}\sqrt{1}$$
r = 0.45 x 1 = 0.45

Item 45 $r_{pbi} = \frac{42.33-39.21}{6.2}\sqrt{\frac{0.5}{0.5}}$

$$r = \frac{3.12}{6.2}\sqrt{1}$$
r = 0.503 x 1 = 0.503

Item 46 $r_{pbi} = \frac{35.8-39.21}{6.2}\sqrt{\frac{0.2}{0.8}}$

$$r = \frac{-3.41}{6.2}\sqrt{0.25}$$
r = -0.55 x 0.5 = -0.275

Item 47 $r_{pbi} = \frac{41-39.21}{6.2}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.79}{6.2}\sqrt{2.33}$$
r = 0.288 x 1.52 = 0.437

Item 48 $r_{pbi} = \frac{41.21-39.21}{6.2}\sqrt{\frac{0.8}{0.2}}$

$$r = \frac{2}{6.2}\sqrt{4}$$

$$r = 0.322 \times 2 = 0.644$$

Item 49 $r_{pbi} = \dfrac{42.62 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{3.41}{6.2} \sqrt{2.33}$

$r = 0.55 \times 1.52 = 0.836$

Item 50 $r_{pbi} = \dfrac{41.88 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{2.67}{6.2} \sqrt{2.33}$

$r = 0.430 \times 1.52 = 0.653$

Item 51 $r_{pbi} = \dfrac{41.12 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{1.91}{6.2} \sqrt{2.33}$

$r = 0.308 \times 1.52 = 0.468$

Item 52 $r_{pbi} = \dfrac{41.05 - 39.21}{6.2} \sqrt{\dfrac{0.8}{0.2}}$

$r = \dfrac{1.84}{6.2} \sqrt{4}$

$r = 0.296 \times 2 = 0.592$

Item 53 $r_{pbi} = \dfrac{43.5 - 39.21}{6.2} \sqrt{\dfrac{0.6}{0.4}}$

$r = \dfrac{4.29}{6.2} \sqrt{1.5}$

$r = 0.691 \times 1.2 = 0.829$

Item 54 $r_{pbi} = \dfrac{41.53 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{2.32}{6.2} \sqrt{2.33}$

$r = 0.374 \times 1.52 = 0.568$

Item 55 $r_{pbi} = \dfrac{42.5 - 39.21}{6.2} \sqrt{\dfrac{0.2}{0.8}}$

$r = \dfrac{3.29}{6.2} \sqrt{0.25}$

$r = 0.530 \times 0.5 = 0.265$

Item 56 $r_{pbi} = \dfrac{41 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{1.79}{6.2} \sqrt{2.33}$

$r = 0.288 \times 1.52 = 0.437$

Item 57 $r_{pbi} = \dfrac{40.77 - 39.21}{6.2} \sqrt{\dfrac{0.8}{0.2}}$

$r = \dfrac{1.56}{6.2} \sqrt{4}$

$r = 0.251 \times 2 = 0.502$

Item 58 $r_{pbi} = \dfrac{41.13 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{1.92}{6.2} \sqrt{2.33}$

$r = 0.309 \times 1.52 = 0.469$

Item 59 $r_{pbi} = \dfrac{40.5 - 39.21}{6.2} \sqrt{\dfrac{0.2}{0.8}}$

$r = \dfrac{1.29}{6.2} \sqrt{0.25}$

$r = 0.208 \times 0.5 = 0.104$

Item 60 $r_{pbi} = \dfrac{39.75 - 39.21}{6.2} \sqrt{\dfrac{0.2}{0.8}}$

$r = \dfrac{0.54}{6.2} \sqrt{0.25}$

$r = 0.087 \times 0.5 = 0.0435$

Item 61 $r_{pbi} = \dfrac{42.07 - 39.21}{6.2} \sqrt{\dfrac{0.6}{0.4}}$

$r = \dfrac{2.86}{6.2} \sqrt{1.5}$

$r = 0.461 \times 1.2 = 0.553$

Item 62 $r_{pbi} = \dfrac{39.33 - 39.21}{6.2} \sqrt{\dfrac{0.3}{0.7}}$

$r = \dfrac{0.12}{6.2} \sqrt{0.42}$

$r = 0.0193 \times 0.64 = 0.0123$

Item 63 $r_{pbi} = \dfrac{41.66 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{2.45}{6.2} \sqrt{2.33}$

$r = 0.395 \times 1.52 = 0.6004$

Item 64 $r_{pbi} = \dfrac{42.35 - 39.21}{6.2} \sqrt{\dfrac{0.6}{0.4}}$

$r = \dfrac{3.14}{6.2} \sqrt{1.5}$

$r = 0.506 \times 1.2 = 0.6072$

Item 65 $r_{pbi} = \dfrac{39.85 - 39.21}{6.2} \sqrt{\dfrac{0.3}{0.7}}$

$r = \dfrac{0.64}{6.2} \sqrt{0.42}$

$r = 0.1032 \times 0.64 = 0.0660$

Item 66 $r_{pbi} = \dfrac{36 - 39.21}{6.2} \sqrt{\dfrac{0.3}{0.7}}$

$r = \dfrac{-0.321}{6.2} \sqrt{0.42}$

$r = -0.517 \times 0.64 = -0.3308$

Item 67 $r_{pbi} = \dfrac{40.55 - 39.21}{6.2} \sqrt{\dfrac{0.8}{0.2}}$

$r = \dfrac{1.34}{6.2} \sqrt{4}$

$$r = 0.216 \text{ x } 2 = 0.432$$

Item 68 $r_{pbi} = \dfrac{41.33 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$$r = \dfrac{2.12}{6.2} \sqrt{2.33}$$

$$r = 0.341 \text{ x } 1.52 = 0.518$$

Item 69 $r_{pbi} = \dfrac{41 - 39.21}{6.2} \sqrt{\dfrac{0.7}{0.3}}$

$$r = \dfrac{1.79}{6.2} \sqrt{2.33}$$

$$r = 0.288 \text{ x } 1.52 = 0.437$$

Item 70 $r_{pbi} = \dfrac{41.78 - 39.21}{6.2} \sqrt{\dfrac{0.6}{0.4}}$

$$r = \dfrac{2.57}{6.2} \sqrt{1.5}$$

$$r = 0.414 \text{ x } 1.2 = 0.496$$

Appendix 8

Table of Pre Test Validity

Number of Item	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	41.31	39.21	6.21	0.7	0.3	0.513	0.413	Valid
2	40.93	39.21	6.21	0.7	0.3	0.421	0.413	Valid
3	48.83	39.21	6.21	0.2	0.8	-0.0305	0.413	Invalid
4	40.72	39.21	6.21	0.8	0.2	0.486	0.413	Valid
5	41.37	39.21	6.21	0.7	0.3	0.528	0.413	Valid
6	41.25	39.21	6.21	0.7	0.3	0.500	0.413	Valid
7	41.06	39.21	6.21	0.7	0.3	0.452	0.413	Valid
8	40.88	39.21	6.21	0.8	0.2	0.538	0.413	Valid
9	41.66	39.21	6.21	0.7	0.3	0.6004	0.413	Valid
10	40.56	39.21	6.21	0.8	0.2	0.434	0.413	Valid
11	41.05	39.21	6.21	0.8	0.2	0.592	0.413	Valid
12	40.77	39.21	6.21	0.8	0.2	0.502	0.413	Valid
13	39.62	39.21	6.21	0.3	0.7	0.042	0.413	Invalid
14	40.68	39.21	6.21	0.8	0.2	0.474	0.413	Valid
15	41.56	39.21	6.21	0.7	0.3	0.576	0.413	Valid
16	41.43	39.21	6.21	0.7	0.3	0.544	0.413	Valid
17	41	39.21	6.21	0.7	0.3	0.437	0.413	Valid
18	37	39.21	6.21	0.3	0.7	-0.227	0.413	Invalid
19	41	39.21	6.21	0.7	0.3	0.437	0.413	Valid
20	41.31	39.21	6.21	0.7	0.3	0.513	0.413	Valid
21	41.33	39.21	6.21	0.7	0.3	0.518	0.413	Valid
22	41.27	39.21	6.21	0.8	0.2	0.664	0.413	Valid
23	41.18	39.21	6.21	0.7	0.3	0.481	0.413	Valid
24	40.94	39.21	6.21	0.8	0.2	0.558	0.413	Valid
25	40.15	39.21	6.21	0.9	0.1	0.454	0.413	Valid
26	40.72	39.21	6.21	0.8	0.2	0.487	0.413	Valid
27	40.61	39.21	6.21	0.8	0.2	0.45	0.413	Valid
28	38.4	39.21	6.21	0.2	0.8	-0.065	0.413	Invalid
29	43.07	39.21	6.21	0.6	0.4	0.746	0.413	Valid
30	42.42	39.21	6.21	0.6	0.4	0.621	0.413	Valid
31	41.11	39.21	6.21	0.8	0.2	0.465	0.413	Valid
32	40.84	39.21	6.21	0.8	0.2	0.524	0.413	Valid
33	37.57	39.21	6.21	0.3	0.7	-0.168	0.413	Invalid
34	41	39.21	6.21	0.7	0.3	0.438	0.413	Valid
35	41.37	39.21	6.21	0.7	0.3	0.529	0.413	Valid
36	40.5	39.21	6.21	0.8	0.2	0.416	0.413	Valid

37	41.18	39.21	6.21	0.7	0.3	0.481	0.413	Valid
38	38.5	39.21	6.21	0.3	0.7	-0.073	0.413	Invalid
39	41.06	39.21	6.21	0.7	0.3	0.452	0.413	Valid
40	41.75	39.21	6.21	0.7	0.3	0.621	0.413	Valid
41	40.93	39.21	6.21	0.7	0.3	0.421	0.413	Valid
42	41.53	39.21	6.21	0.7	0.3	0.568	0.413	Valid
43	41.57	39.21	6.21	0.6	0.4	0.456	0.413	Valid
44	42	39.21	6.21	0.6	0.4	0.45	0.413	Valid
45	42.33	39.21	6.21	0.5	0.5	0.503	0.413	Valid
46	35.8	39.21	6.21	0.2	0.8	-0.275	0.413	Invalid
47	41	39.21	6.21	0.7	0.3	0.437	0.413	Valid
48	41.21	39.21	6.21	0.8	0.2	0.644	0.413	Valid
49	42.62	39.21	6.21	0.7	0.3	0.836	0.413	Valid
50	41.88	39.21	6.21	0.7	0.3	0.653	0.413	Valid
51	41.12	39.21	6.21	0.7	0.3	0.468	0.413	Valid
52	41.05	39.21	6.21	0.8	0.2	0.592	0.413	Valid
53	43.5	39.21	6.21	0.6	0.4	0.829	0.413	Valid
54	41.53	39.21	6.21	0.7	0.3	0.568	0.413	Valid
55	42.5	39.21	6.21	0.2	0.8	0.265	0.413	Invalid
56	41	39.21	6.21	0.7	0.3	0.437	0.413	Valid
57	40.77	39.21	6.21	0.8	0.2	0.502	0.413	Valid
58	41.13	39.21	6.21	0.7	0.3	0.469	0.413	Valid
59	40.5	39.21	6.21	0.2	0.8	0.104	0.413	Invalid
60	39.75	39.21	6.21	0.2	0.8	0.043	0.413	Invalid
61	42.07	39.21	6.21	0.6	0.4	0.553	0.413	Valid
62	39.33	39.21	6.21	0.3	0.7	0.012	0.413	Invalid
63	41.66	39.21	6.21	0.7	0.3	0.600	0.413	Valid
64	42.35	39.21	6.21	0.6	0.4	0.607	0.413	Valid
65	39.85	39.21	6.21	0.3	0.7	0.066	0.413	Invalid
66	36	39.21	6.21	0.3	0.7	-0.330	0.413	Invalid
67	40.55	39.21	6.21	0.8	0.2	0.432	0.413	Valid
68	41.33	39.21	6.21	0.7	0.3	0.518	0.413	Valid
69	41	39.21	6.21	0.7	0.3	0.437	0.413	Valid
70	41.78	39.21	6.21	0.6	0.4	0.496	0.413	Valid

From the table above, it can be seen that 13 items was invalid and 57 items was valid. So, the researcher took 50 items for pre test.

Validity of Post Test

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
																																				NUMBER OF ITEMS				
1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1
2	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	0	1	1	1	0	1	1	1	1	0	0	1	0	1	0	1	0	1	1	1	1	1	0	0	0
3	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1
4	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1
5	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	0	1	0	0	1	1	1	1	0	0	1	1	0	1
6	1	1	1	0	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	0	1	0	0	0	1	1	0	0	1	1	1	1	1
7	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	0	1	0	0	1	1	1	1	1	1
8	1	0	1	1	1	0	1	1	0	1	1	1	0	1	0	0	0	1	1	1	1	1	0	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	0	1	0	0	0	1	1	0	1	1	1	1	0	1	1	1	1	0	0	1	0	1	1	0	0	0	1	0	1	1	0	1
10	0	1	1	0	0	1	0	1	0	1	0	1	1	0	1	1	0	1	0	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1
11	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	1	0	0	1
12	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0	0	1	1	1	1	1
13	0	0	1	1	1	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	0	1	1	0
14	1	1	0	1	0	0	1	0	1	1	0	1	1	0	0	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1
15	1	1	0	1	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	1	0	1	1	0	0	1	0	1	1	1	1	1	1	0	1	1	0	1	1
16	0	0	1	1	1	0	1	1	0	1	0	0	0	1	0	0	0	1	1	1	0	1	1	1	1	0	0	0	0	1	1	1	1	0	1	1	1	0	1	1
17	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	1	1	0	1	0	0	1	0	1	0	1	1	1	1	1	1	0	1	1
18	0	0	1	1	0	1	0	1	0	0	1	1	0	1	0	1	1	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
19	1	1	0	1	0	1	1	1	1	1	1	0	1	1	0	1	0	0	1	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1
20	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	0	1	1	1	0	1	0	1	0	1	0	0	0	0	0	1	1	1	0	0	1	1	0	0	1
21	1	0	0	0	1	0	1	1	0	1	0	1	1	1	0	0	1	1	0	1	1	0	1	1	1	0	1	0	1	1	1	1	1	1	0	1	0	1	1	0
22	1	0	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	0	1	1	0	0	0	0	1	0	1	1	1	0	0	1	0	1	1	1	1
23	0	0	1	1	1	0	1	0	0	1	0	1	1	1	0	1	0	1	0	0	1	0	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	0	1	0
N=23	15	14	18	16	17	15	15	18	6	18	4	17	17	18	3	15	16	22	15	14	15	18	17	19	5	4	19	6	17	15	21	19	16	15	16	22	17	15	17	16
P	0,7	0,6	0,8	0,7	0,7	0,7	0,7	0,8	0,2	0,8	0,2	0,7	0,7	0,8	0,1	0,7	0,7	0,9	0,7	0,6	0,7	0,8	0,7	0,8	0,2	0,2	0,8	0,2	0,7	0,7	0,9	0,8	0,7	0,7	0,7	0,9	0,7	0,7	0,7	0,7
Q	0,3	0,4	0,2	0,3	0,3	0,3	0,3	0,2	0,8	0,2	0,8	0,3	0,3	0,2	0,9	0,3	0,3	0,1	0,3	0,4	0,3	0,2	0,3	0,2	0,8	0,8	0,2	0,8	0,3	0,3	0,1	0,2	0,3	0,3	0,3	0,1	0,3	0,3	0,3	0,3

Cont....

Validity of Post Test

No	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	Xt	Xt²
1	1	0	1	0	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	50	2500
2	0	1	1	0	0	1	1	1	0	1	0	1	0	0	0	0	1	0	1	0	1	0	0	1	1	0	1	0	0	0	40	1600
3	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	1	0	1	1	1	0	0	51	2601
4	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	1	1	1	1	1	1	0	0	52	2704
5	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	1	1	0	0	1	1	1	0	0	0	1	0	33	1089
6	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	0	0	1	1	0	0	47	2209
7	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	1	0	1	0	0	0	1	1	1	1	1	1	0	1	49	2401
8	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0	54	2916
9	1	1	1	0	0	1	1	0	0	1	0	0	0	1	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	0	42	1764
10	0	0	1	0	0	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	0	0	0	0	1	1	1	0	0	44	1936
11	1	1	1	0	0	1	1	1	0	0	0	1	0	0	0	0	1	1	0	1	0	0	1	0	1	1	1	0	0	0	30	900
12	0	1	1	0	1	0	1	0	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	51	2601
13	1	0	0	0	0	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0	0	1	0	1	1	0	1	0	44	1936
14	1	1	1	0	0	0	0	1	1	0	0	1	1	0	1	0	1	0	1	0	1	0	1	1	1	1	1	1	0	0	45	2025
15	0	1	1	0	0	1	1	1	0	1	0	1	0	1	1	0	1	1	0	1	1	0	1	1	1	0	1	0	0	1	47	2209
16	1	0	0	0	0	1	0	1	1	1	0	1	0	0	1	0	1	0	1	0	1	1	0	1	1	0	1	1	1	0	41	1681
17	1	1	1	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0	0	0	0	0	1	1	0	0	44	1936
18	1	0	0	0	1	0	1	1	1	0	1	0	0	1	0	0	1	1	1	0	1	0	1	0	1	1	1	0	0	1	42	1764
19	0	1	1	0	0	0	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	0	51	2601
20	1	1	1	0	0	1	1	1	0	0	0	1	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	38	1444
21	1	1	0	1	0	1	0	1	1	1	0	0	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0	0	1	43	1849
22	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1	0	0	0	0	0	1	0	0	44	1936
23	0	0	0	0	0	1	0	1	0	1	0	1	1	1	0	0	0	0	1	1	1	0	1	1	1	0	1	1	0	0	40	1600
N=23	17	15	15	2	4	17	16	21	16	18	4	17	15	15	16	3	18	15	17	15	15	5	16	17	16	14	18	15	3	4	∑xt= 1022	∑xt² = 46202
p	0,7	0,7	0,7	0,1	0,1	0,7	0,7	0,9	0,7	0,8	0,1	0,7	0,7	0,7	0,7	0,1	0,8	0,7	0,7	0,7	0,7	0,2	0,7	0,7	0,7	0,6	0,8	0,7	0,1	0,1		
q	0,3	0,3	0,3	0,9	0,9	0,3	0,3	0,1	0,3	0,2	0,9	0,3	0,3	0,3	0,3	0,9	0,2	0,3	0,3	0,3	0,3	0,8	0,3	0,3	0,3	0,4	0,2	0,3	0,9	0,9		

Appendix 10

Calculation of $r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$ **in Post Test**

A. Calculation of Post-Test

1. Means score from score total (M_t)

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

$$M_t = \frac{1022}{23} = 44.43$$

2. Standard Deviation (SD_t)

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

$$SD_t = \sqrt{\frac{46202}{23} - \left(\frac{1022}{23}\right)^2}$$

$$SD_t = \sqrt{2008.78 - 44.43^2}$$

$$SD_t = \sqrt{2008.78 - 1974.02} = \sqrt{34.76} = 5.89$$

3. Means Score (M_p)

Item 1 $M_{p1} = \frac{\text{the total of students score that true item answer}}{n1}$

$$M_{p1} = \frac{\begin{array}{c}50+40+52+47+49+54+42+51\\+45+47+44+51+38+43+44\end{array}}{15}$$

$$M_{p1} = \frac{697}{15} = 46.46$$

Item 2 $M_{p2} = \frac{\text{the total of students score that answer true item}}{n2}$

$$M_{p2} = \frac{\begin{array}{c}50+40+52+47+49+42+44+51\\+45+47+44+51+44\end{array}}{13}$$

$$M_{p2} = \frac{646}{14} = 46.62$$

Item 3 $M_{p3} = \frac{\text{the total of students score that answer true item}}{n3}$

$$M_{p3} = \frac{\begin{array}{c}50+40+51+52+33+47+54+42+44+51\\44+45+47+44+42+51+40\end{array}}{17}$$

$$M_{p3} = \frac{787}{17} = 46.29$$

Item 4 $M_{p4} = \frac{\text{the total of students score that answer true item}}{n4}$

$$M_{p4} = \frac{\begin{array}{c}50+40+51+49+54+42+51+44\\+45+47+41+44+42+51+38+44\end{array}}{16}$$

$$M_{p4} = \frac{743}{16} = 46.43$$

Item 5 $M_{p5} = \frac{\text{the total of students score that answer true item}}{n5}$

$$M_{p5} = \dfrac{\substack{50+40+51+52+47+49+54+42+51+44 \\ +47+41+44+38+43+44+40}}{17}$$

$$M_{p5} = \dfrac{787}{17} = 46.29$$

Item 6 $M_{p6} = \dfrac{\text{the total of students score that answer true item}}{n6}$

$$M_{p6} = \dfrac{\substack{50+40+51+52+47+49+42+44 \\ +51+44+47+42+51+38+44}}{15}$$

$$M_{p6} = \dfrac{692}{15} = 46.13$$

Item 7 $M_{p7} = \dfrac{\text{the total of students score that answer true item}}{n7}$

$$M_{p7} = \dfrac{\substack{40+52+47+54+42+51+44+45 \\ +47+41+51+38+43+44+40}}{15}$$

$$M_{p7} = \dfrac{679}{15} = 46.25$$

Item 8 $M_{p8} = \dfrac{\text{the total of students score that answer true item}}{n8}$

$$M_{p8} = \dfrac{\substack{50+40+51+52+33+47+49+54+42+44+51 \\ +44+47+41+42+51+43+44}}{18}$$

$$M_{p8} = \dfrac{825}{18} = 45.83$$

Item 9 $M_{p9} = \dfrac{\text{the total of students score that answer true item}}{n9}$

$$M_{p9} = \dfrac{51+52+49+45+51+44}{6}$$

$$M_{p9} = \dfrac{292}{6} = 48.66$$

Item 10 $M_{p10} = \dfrac{\text{the total of students score that answer true item}}{n10}$

$$M_{p10} = \dfrac{\substack{50+40+51+52+33+47+49+54+42+44 \\ +51+45+47+41+51+43+44+40}}{18}$$

$$M_{p10} = \dfrac{824}{18} = 45.78$$

Item 11 $M_{p11} = \dfrac{\text{the total of students score that answer true item}}{n11}$

$$M_{p11} = \dfrac{51+54+51+42}{4}$$

$$M_{p11} = \dfrac{198}{4} = 49.5$$

Item 12 $M_{p12} = \dfrac{\substack{50+51+52+47+49+54+44+51 \\ +44+45+47+44+42+51+43+44+40}}{17}$

$$M_{p12} = \dfrac{838}{17}$$

$$M_{p12} = 49.29$$

Item 13 $M_{p13} = \dfrac{50+40+51+52+49+54+42+51+44+47+41+44+44+51+43+44+40}{17}$

$M_{p13} = \dfrac{787}{17}$

$M_{p13} = 46.29$

Item 14 $M_{p14} = \dfrac{50+40+51+52+47+49+54+42+51+44+45+47+44+51+38+43+44+40}{18}$

$M_{p14} = \dfrac{832}{18} = 46.22$

Item 15 $M_{p15} = \dfrac{50+44+51}{3}$

$M_{p15} = \dfrac{145}{3} = 48.33$

Item 16 $M_{p16} = \dfrac{50+51+52+47+49+42+44+51+45+47+44+42+51+44+40}{15}$

$M_{p16} = \dfrac{699}{15} = 46.6$

Item 17 $M_{p17} = \dfrac{50+40+51+47+49+54+42+51+45+47+44+51+38+43+44}{15}$

$M_{p17} = \dfrac{696}{15} = 46.4$

Item 18 $M_{p18} = \dfrac{50+40+51+52+33+47+49+54+42+44+51+44+45+47+41+44+42+51+38+43+44+40}{22}$

$M_{p18} = \dfrac{992}{22} = 45.09$

Item 19 $M_{p19} = \dfrac{50+40+51+52+47+49+54+42+51+44+45+47+41+44+42}{15}$

$M_{p19} = \dfrac{699}{15} = 46.6$

Item 20 $M_{p20} = \dfrac{51+52+47+54+44+51+44+47+41+44+51+38+43+44}{14}$

$M_{p20} = \dfrac{651}{14} = 46.5$

Item 21 $M_{p21} = \dfrac{50+40+52+54+42+44+51+44+45+47+44+42+51+43+44}{15}$

$M_{p21} = \dfrac{693}{15} = 46.2$

Item 22 $M_{p22} = \dfrac{50+40+51+52+47+49+54+42+44+51+44+45+41+44+42+51+38+44}{18}$

$M_{p22} = \dfrac{829}{18} = 46.05$

Item 23 $M_{p23} = \dfrac{50+40+52+47+49+54+42+44+51+45+47+41+42+51+43+44+40}{17}$

$$M_{p23} = \frac{782}{17} = 46$$

Item 24 $M_{p24} = \dfrac{\begin{array}{c}40+51+52+47+49+54+42+44+51+\\45+47+41+44+42+51+38+43+44+40\end{array}}{19}$

$$M_{p24} = \frac{865}{19} = 45.53$$

Item 25 $M_{p25} = \dfrac{33+44+41+51+43}{5}$

$$M_{p25} = \frac{212}{5} = 42.4$$

Item 26 $M_{p26} = \dfrac{51+54+51+42}{4}$

$$M_{p26} = \frac{198}{4} = 49.5$$

Item 27 $M_{p27} = \dfrac{\begin{array}{c}50+40+51+52+33+47+49+54+42+44+51+44+\\45+47+44+42+51+43+40\end{array}}{19}$

$$M_{p27} = \frac{874}{19} = 46$$

Item 28 $M_{p28} = \dfrac{51+52+49+45+51+44}{6}$

$$M_{p28} = \frac{292}{6} = 48.66$$

Item 29 $M_{p29} = \dfrac{50+40+51+52+49+54+42+44+51+44+45+47+44+42+51+43+40}{17}$

$$M_{p29} = \frac{789}{17} = 46.41$$

Item 30 $M_{p30} = \dfrac{50+51+52+49+54+42+44+51+44+47+44+42+38+43+44}{15}$

$$M_{p30} = \frac{695}{15} = 46.33$$

Item 31 $M_{p31} = \dfrac{\begin{array}{c}50+40+51+52+33+47+49+54+44+30+44+45+47\\+41+44+42+51+38+43+44+40\end{array}}{21}$

$$M_{p31} = \frac{929}{21} = 44.23$$

Item 32 $M_{p32} = \dfrac{\begin{array}{c}50+40+51+52+33+47+49+54+42+44+51+44+\\45+47+44+42+51+43+40\end{array}}{19}$

$$M_{p32} = \frac{874}{19} = 46$$

Item 33 $M_{p33} = \dfrac{\begin{array}{c}50+40+51+52+33+49+54+44+51+44+45+47\\+41+44+42+51+43+44+40\end{array}}{19}$

$$M_{p33} = \frac{865}{19} = 45.53$$

Item 34 $M_{p34} = \dfrac{\begin{array}{c}50+51+52+54+42+44+51+44+45+47\\+44+42+51+43+40\end{array}}{15}$

$$M_{p34} = \frac{700}{15} = 46.66$$

Item 35 $M_{p35} = \dfrac{\substack{50+40+51+52+47+54+44+51+44+45 \\ +41+44+42+51+44+40}}{16}$

$$M_{p35} = \frac{740}{16} = 46.25$$

Item 36 $M_{p36} = \dfrac{\substack{50+40+51+52+33+47+49+54+42+44+30+51+44+45+47 \\ +41+44+42+51+38+43+40}}{22}$

$$M_{p36} = \frac{978}{22} = 44.45$$

Item 37 $M_{p37} = \dfrac{\substack{40+51+52+33+47+49+54+42+44+51+45+47 \\ +44+51+43+44+40}}{17}$

$$M_{p37} = \frac{778}{17} = 45.8$$

Item 38 $M_{p38} = \dfrac{50+51+52+47+49+54+44+51+44+45+44+51+43+44+40}{15}$

$$M_{p38} = \frac{709}{15} = 47.26$$

Item 39 $M_{p39} = \dfrac{50+51+52+47+49+54+42+30+51+44+47+41+44+51+43+44+40}{17}$

$$M_{p39} = \frac{780}{17} = 45.88$$

Item 40 $M_{p40} = \dfrac{50+51+52+33+47+49+54+44+51+45+47+41+44+51+38+44}{16}$

$$M_{p40} = \frac{741}{16} = 46.31$$

Item 41 $M_{p41} = \dfrac{50+51+52+33+47+49+54+42+30+44+45+41+44+42+38+43+44}{16}$

$$M_{p41} = \frac{799}{17} = 47$$

Item 42 $M_{p42} = \dfrac{40+52+47+49+54+42+51+44+45+47+44+51+38+43+44}{15}$

$$M_{p42} = \frac{691}{15} = 46.06$$

Item 43 $M_{p43} = \dfrac{50+40+52+47+49+54+44+51+45+47+44+51+38+43+44}{15}$

$$M_{p43} = \frac{699}{15} = 46.6$$

Item 44 $M_{p44} = \dfrac{33+43}{2}$

$$M_{p44} = \frac{76}{2} = 38$$

Item 45 $M_{p45} = \dfrac{51+54+51+42}{4}$

$$M_{p45} = \frac{198}{4} = 49.5$$

Item 46 $M_{p46} = \frac{50+40+51+52+47+49+54+42+44+47+41+44+51+38+43+44+40}{17}$

$$M_{p46} = \frac{787}{17} = 46.29$$

Item 47 $M_{p47} = \frac{50+40+51+52+7+49+54+42+44+51+44+47+42+51+38+44}{16}$

$$M_{p47} = \frac{746}{16} = 46.62$$

Item 48 $M_{p48} = \frac{50+40+51+52+33+47+49+54+44+30+44+45+47+41+44+42+51+38+43+44+40}{21}$

$$M_{p48} = \frac{929}{21} = 44.23$$

Item 49 $M_{p49} = \frac{50+51+52+47+49+54+44+51+44+45+41+44+42+51+43+44}{16}$

$$M_{p49} = \frac{752}{16} = 47$$

Item 50 $M_{p50} = \frac{50+40+51+52+47+49+54+42+44+51+44+47+41+44+51+43+44+40}{18}$

$$M_{p50} = \frac{834}{18} = 46.33$$

Item 51 $M_{p51} = \frac{51+54+51+42}{4}$

$$M_{p51} = \frac{198}{4} = 49.5$$

Item 52 $M_{p52} = \frac{50+40+51+52+33+47+49+54+44+51+45+47+41+51+43+44+40}{17}$

$$M_{p52} = \frac{782}{17} = 46$$

Item 53 $M_{p53} = \frac{50+51+52+47+49+54+44+51+44+45+44+51+43+44+40}{15}$

$$M_{p53} = \frac{709}{15} = 47.26$$

Item 54 $M_{p54} = \frac{51+52+47+49+54+42+51+44+47+44+42+51+38+44+40}{15}$

$$M_{p54} = \frac{696}{15} = 46.4$$

Item 55 $M_{p55} = \frac{50+51+52+33+47+49+54+42+44+51+45+47+41+51+44+40}{16}$

$$M_{p55} = \frac{741}{16} = 46.31$$

Item 56 $M_{p56} = \frac{50+44+51}{3}$

$$M_{p56} = \frac{145}{3} = 48.33$$

Item 57 $M_{p57} = \dfrac{50+40+51+47+49+54+42+44+51+44+45+47+41+44+51+38+43+44}{18}$

$\quad M_{p57} = \dfrac{825}{18} = 45.83$

Item 58 $M_{p58} = \dfrac{50+51+52+47+54+42+44+51+44+47+41+44+51+43+44}{15}$

$\quad M_{p58} = \dfrac{705}{15} = 47$

Item 59 $M_{p59} = \dfrac{50+40+51+52+33+49+54+44+51+44+45+47+44+51+43+44+40}{17}$

$\quad M_{p59} = \dfrac{782}{17} = 46$

Item 60 $M_{p60} = \dfrac{51+52+33+47+54+44+30+51+44+47+41+44+51+43+44}{15}$

$\quad M_{p60} = \dfrac{696}{15} = 46.4$

Item 61 $M_{p61} = \dfrac{50+40+52+54+42+44+51+44+45+47+44+42+51+43+40}{15}$

$\quad M_{p61} = \dfrac{689}{15} = 45.93$

Item 62 $M_{p62} = \dfrac{50+47+51+41+44}{5}$

$\quad M_{p62} = \dfrac{233}{5} = 46.6$

Item 63 $M_{p63} = \dfrac{50+52+33+47+49+54+44+30+51+45+47+41+44+51+43+40}{16}$

$\quad M_{p63} = \dfrac{745}{16} = 46.56$

Item 64 $M_{p64} = \dfrac{50+40+51+52+33+47+49+54+44+51+44+47+51+44+40}{15}$

$\quad M_{p64} = \dfrac{697}{15} = 46.46$

Item 65 $M_{p65} = \dfrac{50+40+52+47+49+54+42+44+51+45+47+41+42+51+43+40}{16}$

$\quad M_{p65} = \dfrac{738}{16} = 46.12$

Item 66 $M_{p66} = \dfrac{50+51+52+49+54+44+30+51+44+45+47+44+51+43}{14}$

$\quad M_{p66} = \dfrac{655}{14} = 46.78$

Item 67 $M_{p67} = \dfrac{40+51+52+47+49+54+44+51+44+45+47+41+44+42+51+43+44+40}{18}$

$\quad M_{p67} = \dfrac{829}{18} = 46.05$

Item 68 $M_{p68} = \dfrac{51+52+47+49+54+42+44+51+45+41+44+51+38+44+40}{15}$

$$M_{p68} = \frac{693}{15} = 46.2$$

Item 69 $M_{p69} = \frac{33+44+51}{3}$

$$M_{p69} = \frac{128}{3} = 42.66$$

Item 70 $M_{p70} = \frac{49+47+42+43}{4}$

$$M_{p70} = \frac{181}{4} = 45.25$$

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

Item 1 $r_{pbi=\frac{M_p-M_t}{SD_t}\sqrt{\frac{p}{q}}}$

$$r_{pbi} = \frac{46.46-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{2.03}{5.89}\sqrt{2.33}$$

$r = 0.334 \text{ x } 1.52 = 0.522$

Item 2 $r_{pbi} = \frac{46.62-44.43}{5.28}\sqrt{\frac{0.6}{0.4}}$

$$r = \frac{2.19}{5.89}\sqrt{1.5}$$

$r = 0.38 \text{ x } 1.2 = 0.456$

Item 3 $r_{pbi} = \frac{46.29-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.86}{5.89}\sqrt{2.33}$$

$r = 0.32 \text{ x } 1.52 = 0.486$

Item 4 $r_{pbi} = \frac{46.43-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2}{5.89}\sqrt{2.33}$$

$r = 0.34 \text{ x } 1.52 = 0.516$

Item 5 $r_{pbi} = \frac{46.29-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.86}{5.89}\sqrt{2.33}$$

$r = 0.32 \text{ x } 1.52 = 0.486$

Item 6 $r_{pbi} = \frac{46.13-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.7}{5.89}\sqrt{2.33}$$

$r = 0.288 \text{ x } 1.52 = 0.437$

Item 7 $r_{pbi} = \frac{46.25-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.82}{5.89}\sqrt{2.33}$$

$r = 0.31 \text{ x } 1.52 = 0.471$

Item 8 $r_{pbi} = \dfrac{45.83 - 44.43}{5.89} \sqrt{\dfrac{0.8}{0.2}}$

$\qquad r = \dfrac{1.4}{5.89} \sqrt{4}$

$\qquad r = 0.24 \times 2 = 0.48$

Item 9 $r_{pbi} = \dfrac{48.66 - 44.43}{5,89} \sqrt{\dfrac{0.2}{0.8}}$

$\qquad r = \dfrac{4.23}{5,89} \sqrt{0.25}$

$\qquad r = 0.71 \times 0.5 = 0.355$

Item 10 $r_{pbi} = \dfrac{45.78 - 44.43}{5.89} \sqrt{\dfrac{0.8}{0.2}}$

$\qquad r = \dfrac{1.35}{5.89} \sqrt{4}$

$\qquad r = 0.229 \times 2 = 0.458$

Item 11 $r_{pbi} = \dfrac{49.5 - 44.43}{5.89} \sqrt{\dfrac{0.1}{0.9}}$

$\qquad r = \dfrac{5.07}{5.89} \sqrt{0.1}$

$\qquad r = 0.86 \times 0.3 = 0.258$

Item 12 $r_{pbi} = \dfrac{49.29 - 44.43}{5.89} \sqrt{\dfrac{0.7}{0.3}}$

$\qquad r = \dfrac{4.86}{5.89} \sqrt{2.33}$

$\qquad r = 0.825 \times 1.52 = 0.542$

Item 13 $r_{pbi} = \dfrac{46.29 - 44.43}{5.89} \sqrt{\dfrac{0.7}{0.3}}$

$\qquad r = \dfrac{1.86}{5.28} \sqrt{2.33}$

$\qquad r = 0.315 \times 1.52 = 0.4788$

Item 14 $r_{pbi} = \dfrac{46.22 - 44.43}{5.89} \sqrt{\dfrac{0.8}{0.2}}$

$\qquad r = \dfrac{1.79}{5.89} \sqrt{4}$

$\qquad r = 0.303 \times 2 = 0.606$

Item 15 $r_{pbi} = \dfrac{48.33 - 44.43}{5.89} \sqrt{\dfrac{0.1}{0.9}}$

$\qquad r = \dfrac{3.9}{5.89} \sqrt{0.11}$

$\qquad r = 0.662 \times 0.33 = 0.2184$

Item 16 $r_{pbi} = \frac{46.6-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$r = \frac{2.17}{5.89} \sqrt{2.33}$

$r = 0.368 \times 1.52 = 0.5593$

Item 17 $r_{pbi} = \frac{46.4-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.97}{5.83} \sqrt{2.33}$

$r = 0.334 \times 1.52 = 0.507$

Item 18 $r_{pbi} = \frac{45.09-44.43}{5.89} \sqrt{\frac{0.9}{0.1}}$

$r = \frac{0.66}{5.89} \sqrt{9}$

$r = 0.112 \times 3 = 0.336$

Item 19 $r_{pbi} = \frac{46.6-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$r = \frac{2.17}{5.89} \sqrt{2.33}$

$r = 0.368 \times 1.52 = 0.5593$

Item 20 $r_{pbi} = \frac{46.5-44.43}{5.89} \sqrt{\frac{0.6}{0.4}}$

$r = \frac{2.07}{5.89} \sqrt{1.5}$

$r = 0.351 \times 1.22 = 0.428$

Item 21 $r_{pbi} = \frac{46.2-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.77}{5.89} \sqrt{2.33}$

$r = 0.300 \times 1.52 = 0.456$

Item 22 $r_{pbi} = \frac{46.05-44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.62}{5.89} \sqrt{4}$

$r = 0.275 \times 2 = 0.55$

Item 23 $r_{pbi} = \frac{46-44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.57}{5.89} \sqrt{4}$

$r = 0.266 \times 2 = 0.532$

Item 24 $r_{pbi} = \dfrac{45.53 - 44.43}{5.89} \sqrt{\dfrac{0.9}{0.1}}$

$r = \dfrac{1.1}{5.89} \sqrt{9}$

$r = 0.187 \times 3 = 0.561$

Item 25 $r_{pbi} = \dfrac{42.4 - 44.43}{5.89} \sqrt{\dfrac{0.1}{0.9}}$

$r = \dfrac{-2.03}{5.89} \sqrt{0.1}$

$r = -0.344 \times 0.3 = -0.103$

Item 26 $r_{pbi} = \dfrac{49.5 - 44.43}{5.89} \sqrt{\dfrac{0.1}{0.9}}$

$r = \dfrac{5.07}{5.89} \sqrt{0.1}$

$r = 0.86 \times 0.3 = 0.258$

Item 27 $r_{pbi} = \dfrac{46 - 44.43}{5.89} \sqrt{\dfrac{0.8}{0.2}}$

$r = \dfrac{1.57}{5.89} \sqrt{4}$

$r = 0.266 \times 2 = 0.532$

Item 28 $r_{pbi} = \dfrac{48.66 - 44.43}{5.89} \sqrt{\dfrac{0.2}{0.8}}$

$r = \dfrac{4.23}{5.89} \sqrt{0.25}$

$r = 0.718 \times 0.5 = 0.359$

Item 29 $r_{pbi} = \dfrac{46 - 44.43}{5.89} \sqrt{\dfrac{0.8}{0.2}}$

$r = \dfrac{1.57}{5.89} \sqrt{4}$

$r = 0.266 \times 2 = 0.532$

Item 30 $r_{pbi} = \dfrac{46.33 - 44.43}{5.89} \sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{1.9}{5.89} \sqrt{2.33}$

$r = 0.322 \times 1.52 = 0.4894$

Item 31 $r_{pbi} = \dfrac{44.23 - 44.43}{5.89} \sqrt{\dfrac{0.9}{0.1}}$

$r = \dfrac{-0.2}{5.89} \sqrt{9}$

$r = -0.033 \times 3 = -0.1018$

Item 32 $r_{pbi} = \frac{46 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$

$\quad r = \frac{1.57}{5.89} \sqrt{4}$

$\quad r = 0.266 \text{ x } 2 = 0.532$

Item 33 $r_{pbi} = \frac{45.53 - 44.43}{5.89} \sqrt{\frac{0.9}{0.3}}$

$\quad r = \frac{1.1}{5.89} \sqrt{9}$

$\quad r = 0.186 \text{ x } 3 = 0.5093$

Item 34 $r_{pbi} = \frac{46.66 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$\quad r = \frac{2.23}{5.89} \sqrt{2.33}$

$\quad r = 0.378 \text{ x } 1.52 = 0.5745$

Item 35 $r_{pbi} = \frac{46.25 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$\quad r = \frac{1.82}{5.89} \sqrt{2.33}$

$\quad r = 0.308 \text{ x } 1.52 = 0.4681$

Item 36 $r_{pbi} = \frac{44.45 - 44.43}{5.89} \sqrt{\frac{0.9}{0.1}}$

$\quad r = \frac{0.02}{5.89} \sqrt{9}$

$\quad r = 0.0034 \text{ x } 3 = 0.0102$

Item 37 $r_{pbi} = \frac{45.8 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$

$\quad r = \frac{1.37}{5.89} \sqrt{4}$

$\quad r = 0.232 \text{ x } 2 = 0.465$

Item 38 $r_{pbi} = \frac{47.26 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$\quad r = \frac{2.83}{5.89} \sqrt{2.33}$

$\quad r = 0.480 \text{ x } 1.52 = 0.7296$

Item 39 $r_{pbi} = \frac{45.88 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$

$\quad r = \frac{1.45}{5.89} \sqrt{4}$

$\quad r = 0.246 \text{ x } 2 = 0.492$

Item 40 $r_{pbi} = \frac{46.31 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.88}{5.89}\sqrt{2.33}$$
$$r = 0.319 \text{ x } 1.52 = 0.4848$$

Item 41 $r_{pbi} = \frac{47-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$
$$r = \frac{2.57}{5.89}\sqrt{2.33}$$
$$r = 0.436 \text{ x } 1.52 = 0.662$$

Item 42 $r_{pbi} = \frac{46.06-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$
$$r = \frac{1.63}{5.89}\sqrt{2.33}$$
$$r = 0.276 \text{ x } 1.52 = 0.4206$$

Item 43 $r_{pbi} = \frac{46.6-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$
$$r = \frac{2.17}{5.89}\sqrt{2.33}$$
$$r = 0.368 \text{ x } 1.52 = 0.559$$

Item 44 $r_{pbi} = \frac{38-44.43}{5.89}\sqrt{\frac{0.1}{0.9}}$
$$r = \frac{-6.43}{5.89}\sqrt{0.11}$$
$$r = -1.09 \text{ x } 0.33 = -0.359$$

Item 45 $r_{pbi} = \frac{49.5-44.43}{5.89}\sqrt{\frac{0.1}{0.9}}$
$$r = \frac{5.07}{5.89}\sqrt{0.11}$$
$$r = 0.860 \text{ x } 0.33 = 0.2838$$

Item 46 $r_{pbi} = \frac{46.29-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$
$$r = \frac{1.86}{5.89}\sqrt{2.33}$$
$$r = 0.315 \text{ x } 1.52 = 0.4788$$

Item 47 $r_{pbi} = \frac{46.62-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$
$$r = \frac{2.19}{5.89}\sqrt{2.33}$$
$$r = 0.371 \text{ x } 1.52 = 0.5639$$

Item 48 $r_{pbi} = \frac{44.23-44.43}{5.89}\sqrt{\frac{0.8}{0.2}}$
$$r = \frac{-0.2}{5.89}\sqrt{9}$$
$$r = -0.033 \text{ x } 3 = -0.099$$

Item 49 $r_{pbi} = \dfrac{47-44.43}{5.89}\sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{2.57}{5.89}\sqrt{2.33}$

$r = 0.436 \text{ x } 1.52 = 0.6627$

Item 50 $r_{pbi} = \dfrac{46.33-44.43}{5.89}\sqrt{\dfrac{0.8}{0.2}}$

$r = \dfrac{1.9}{5.89}\sqrt{4}$

$r = 0.322 \text{ x } 2 = 0.644$

Item 51 $r_{pbi} = \dfrac{49.5-44.43}{5.89}\sqrt{\dfrac{0.1}{0.9}}$

$r = \dfrac{5.07}{5.89}\sqrt{0.25}$

$r = 0.860 \text{ x } 0.5 = 0.532$

Item 52 $r_{pbi} = \dfrac{46-44.43}{5.89}\sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{1.6}{5.89}\sqrt{2.33}$

$r = 0.276 \text{x } 1.52 = 0.419$

Item 53 $r_{pbi} = \dfrac{47.26-44.43}{5.89}\sqrt{\dfrac{0.6}{0.4}}$

$r = \dfrac{2.83}{5.89}\sqrt{1.5}$

$r = 0.480 \text{ x } 1.2 = 0.576$

Item 54 $r_{pbi} = \dfrac{46.4-44.43}{5.89}\sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{1.97}{5.89}\sqrt{2.33}$

$r = 0.334 \text{ x } 1.52 = 0.507$

Item 55 $r_{pbi} = \dfrac{46.31-44.43}{5.89}\sqrt{\dfrac{0.7}{0.3}}$

$r = \dfrac{1.88}{5.89}\sqrt{2.33}$

$r = 0.319 \text{ x } 1.52 = 0.4848$

Item 56 $r_{pbi} = \dfrac{48.33-44.43}{5.89}\sqrt{\dfrac{0.1}{0.9}}$

$r = \dfrac{3.9}{5.89}\sqrt{0.11}$

$r = 0.662 \text{ x } 0.33 = 0.218$

Item 57 $r_{pbi} = \dfrac{45.83-44.43}{5.89}\sqrt{\dfrac{0.8}{0.2}}$

$$r = \frac{1.4}{5.89}\sqrt{4}$$
$$r = 0.237 \times 2 = 0.474$$

Item 58 $r_{pbi} = \frac{47-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.57}{5.89}\sqrt{2.33}$$
$$r = 0.436 \times 1.52 = 0.662$$

Item 59 $r_{pbi} = \frac{46-44.43}{5.89}\sqrt{\frac{0.8}{0.2}}$

$$r = \frac{1.57}{5.89}\sqrt{4}$$
$$r = 0.266 \times 2 = 0.532$$

Item 60 $r_{pbi} = \frac{46.4-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.97}{5.89}\sqrt{2.33}$$
$$r = 0.334 \times 1.52 = 0.5076$$

Item 61 $r_{pbi} = \frac{45.93-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.53}{5.89}\sqrt{2.33}$$
$$r = 0.27 \times 1.52 = 0.414$$

Item 62 $r_{pbi} = \frac{46.6-44.43}{5.89}\sqrt{\frac{0.2}{0.8}}$

$$r = \frac{2.17}{5.89}\sqrt{0.25}$$
$$r = 0.368 \times 0.5 = 0.184$$

Item 63 $r_{pbi} = \frac{46.56-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.13}{5.89}\sqrt{2.33}$$
$$r = 0.361 \times 1.52 = 0.548$$

Item 64 $r_{pbi} = \frac{46.46-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.03}{5.89}\sqrt{2.33}$$
$$r = 0.344 \times 1.52 = 0.522$$

Item 65 $r_{pbi} = \frac{46.12-44.43}{5.89}\sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.7}{5.89} \sqrt{2.33}$$

r = 0.293 x 1.52 = 0.445

Item 66 $r_{pbi} = \frac{46.78 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.35}{5.89} \sqrt{2.33}$$

r = 0.398 x 1.52 = 0.6049

Item 67 $r_{pbi} = \frac{46.05 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$

$$r = \frac{1.62}{5.89} \sqrt{4}$$

r = 0.275 x 2 = 0.55

Item 68 $r_{pbi} = \frac{46.2 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.77}{5.89} \sqrt{2.33}$$

r = 0.3005 x 1.52 = 0.4567

Item 69 $r_{pbi} = \frac{42.66 - 44.43}{5.89} \sqrt{\frac{0.1}{0.9}}$

$$r = \frac{-1.77}{5.89} \sqrt{0.11}$$

r = -0.300 x 0.33 = -0.099

Item 70 $r_{pbi} = \frac{45.25 - 44.43}{5.89} \sqrt{\frac{0.2}{0.8}}$

$$r = \frac{0.82}{5.89} \sqrt{0.25}$$

r = 0.139 x 0.5 = 0.0695

Appendix 11

Table of Post Test Validity

Number of Item	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	46.46	44.43	5.89	0.7	0.3	0.522	0.413	Valid
2	46.62	44.43	5.89	0.6	0.4	0.456	0.413	Valid
3	46.29	44.43	5.89	0.8	0.2	0.486	0.413	Valid
4	46.43	44.43	5.89	0.6	0.4	0.516	0.413	Valid
5	46.29	44.43	5.89	0.7	0.3	0.486	0.413	Valid
6	46.13	44.43	5.89	0.7	0.3	0.437	0.413	Valid
7	46.25	44.43	5.89	0.7	0.3	0.471	0.413	Valid
8	45.83	44.43	5.89	0.8	0.2	0.48	0.413	Valid
9	46.88	44.43	5.89	0.2	0.8	0.355	0.413	Invalid
10	45.78	44.43	5.89	0.8	0.2	0.458	0.413	Valid
11	49.5	44.43	5.89	0.2	0.8	0.258	0.413	Invalid
12	49.29	44.43	5.89	0.8	0.2	0.542	0.413	Valid
13	46.29	44.43	5.89	0.7	0.3	0.478	0.413	Valid
14	46.22	44.43	5.89	0.8	0.2	0.606	0.413	Valid
15	48.33	44.43	5.89	0.1	0.9	0.218	0.413	Invalid
16	46.6	44.43	5.89	0.7	0.3	0.559	0.413	Valid
17	46.4	44.43	5.89	0.7	0.3	0.507	0.413	Valid
18	45.09	44.43	5.89	0.9	0.1	0.336	0.413	Invalid
19	46.6	44.43	5.89	0.7	0.3	0.559	0.413	Valid
20	46.5	44.43	5.89	0.6	0.4	0.428	0.413	Valid
21	46.2	44.43	5.89	0.7	0.3	0.456	0.413	Valid
22	46.05	44.43	5.89	0.8	0.2	0.55	0.413	Valid
23	46	44.43	5.89	0.7	0.3	0.532	0.413	Valid
24	45.53	44.43	5.89	0.8	0.2	0.561	0.413	Valid
25	42.4	44.43	5.89	0.2	0.8	-0.103	0.413	Invalid
26	49.5	44.43	5.89	0.2	0.8	0.258	0.413	Invalid
27	46	44.43	5.89	0.8	0.2	0.532	0.413	Valid
28	48.66	44.43	5.89	0.2	0.8	0.359	0.413	Invalid
29	46.41	44.43	5.89	0.7	0.3	0.532	0.413	Valid
30	46.33	44.43	5.89	0.7	0.3	0.489	0.413	Valid
31	46.23	44.43	5.89	0.9	0.1	-0.101	0.413	Invalid
32	46	44.43	5.89	0.8	0.2	0.532	0.413	Valid
33	45.53	44.43	5.89	0.7	0.3	0.509	0.413	Valid
34	46.66	44.43	5.89	0.7	0.3	0.574	0.413	Valid
35	46.25	44.43	5.89	0.7	0.3	0.468	0.413	Valid
36	44.45	44.43	5.89	0.9	0.1	0.010	0.413	Invalid

37	45.8	44.43	5.89	0.7	0.3	0.465	0.413	Valid
38	47.26	44.43	5.89	0.7	0.3	0.729	0.413	Valid
39	45.88	44.43	5.89	0.7	0.3	0.492	0.413	Valid
40	46.31	44.43	5.89	0.7	0.3	0.484	0.413	Valid
41	47	44.43	5.89	0.7	0.3	0.662	0.413	Valid
42	46.06	44.43	5.89	0.7	0.3	0.420	0.413	Valid
43	46.6	44.43	5.89	0.7	0.3	0.559	0.413	Valid
44	38	44.43	5.89	0.1	0.9	-0.359	0.413	Invalid
45	49.5	44.43	5.89	0.1	0.9	0.283	0.413	Invalid
46	46.29	44.43	5.89	0.7	0.3	0.478	0.413	Valid
47	46.62	44.43	5.89	0.7	0.3	0.563	0.413	Valid
48	44.23	44.43	5.89	0.9	0.1	-0.099	0.413	Invalid
49	47	44.43	5.89	0.7	0.3	0.662	0.413	Valid
50	46.33	44.43	5.89	0.8	0.2	0.644	0.413	Valid
51	49.5	44.43	5.89	0.1	0.9	0.532	0.413	Valid
52	46	44.43	5.89	0.7	0.3	0.419	0.413	Valid
53	47.26	44.43	5.89	0.7	0.3	0.576	0.413	Valid
54	46.4	44.43	5.89	0.7	0.3	0.507	0.413	Valid
55	46.31	44.43	5.89	0.7	0.3	0.484	0.413	Valid
56	48.33	44.43	5.89	0.1	0.9	0.218	0.413	Invalid
57	45.83	44.43	5.89	0.8	0.2	0.474	0.413	Valid
58	47	44.43	5.89	0.7	0.3	0.662	0.413	Valid
59	46	44.43	5.89	0.7	0.3	0.532	0.413	Valid
60	46.4	44.43	5.89	0.7	0.3	0.507	0.413	Valid
61	45.93	44.43	5.89	0.7	0.3	0.414	0.413	Valid
62	46.6	44.43	5.89	0.2	0.8	0.184	0.413	Invalid
63	46.56	44.43	5.89	0.7	0.3	0.548	0.413	Valid
64	46.46	44.43	5.89	0.7	0.3	0.522	0.413	Valid
65	46.12	44.43	5.89	0.7	0.3	0.445	0.413	Valid
66	46.78	44.43	5.89	0.6	0.4	0.604	0.413	Valid
67	46.05	44.43	5.89	0.8	0.2	0.55	0.413	Valid
68	46.2	44.43	5.89	0.7	0.3	0.456	0.413	Valid
69	42.66	44.43	5.89	0.1	0.9	-0.099	0.413	Invalid
70	45.25	44.43	5.89	0.1	0.9	0.069	0.413	Invalid

From the table above, it can be seen that 16 items was invalid and 54 items was valid. So, the researcher took 50 items for post test.

Appendix 12

Reliabilty of Pre Test

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	1	1	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	0	0	1
2	1	1	0	1	1	1	0	1	0	1	1	0	0	1	1	0	1	0	1	0	1	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	1	0	0	0
3	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1
4	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1
5	1	1	0	1	0	1	0	1	1	1	0	1	0	1	0	1	0	0	0	1	0	0	1	1	1	0	1	0	0	0	1	1	1	0	0	1	1	0	0	1
6	1	1	1	0	1	1	1	1	0	1	1	1	1	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	0	0	0	1	1	0	0	1	1	1	1	1
7	1	1	0	1	1	1	0	1	1	1	0	1	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1
8	1	0	1	1	1	0	1	1	1	1	1	1	0	1	1	0	0	0	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1
9	1	1	0	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	0	1	0	1	0	1	1	0	1	0
10	0	1	1	0	0	1	0	1	1	1	0	1	0	0	1	1	0	1	0	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	1	0	1
11	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	1	0	0	1
12	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	1	1	1	1
13	1	0	0	1	1	1	1	1	0	0	0	1	0	1	1	0	0	0	1	0	1	1	0	0	1	0	1	0	1	0	1	1	1	1	0	1	1	1	0	0
14	1	1	0	1	0	0	1	0	1	1	1	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	0	1	1	1	1	0	0
15	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0	0	1	1	1	1	1	0	1	1
16	1	0	0	1	1	0	1	1	1	1	1	0	0	1	1	0	0	0	1	1	0	1	1	1	1	1	1	0	0	0	1	0	1	0	0	1	1	1	0	1
17	1	1	0	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	1	0	1	1	0	1	1	1	0	1	1
18	0	0	1	1	0	1	0	1	0	0	1	1	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	0	0	0
19	1	1	0	1	0	1	1	1	1	1	1	1	1	0	1	0	0	1	0	1	1	1	0	1	1	0	1	1	0	0	1	1	0	1	0	0	1	1	1	1
20	1	1	1	1	1	1	1	1	0	0	0	1	0	0	1	1	1	1	0	0	1	0	1	1	1	0	1	0	0	0	1	1	1	0	0	1	0	1	0	0
21	1	1	0	0	1	0	1	1	0	1	1	1	0	1	1	1	1	0	0	1	1	0	1	1	1	1	1	0	1	1	0	1	0	1	0	1	1	0	1	0
22	0	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	1	0	0	1	0	0	1	0	1	1	0	1	0	0	1	1	1	0	1	0	0	1	1	1
23	0	0	1	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	1	0	0	1	1	0	1	1	0	1	1	0	0	0	0	1	1	1	0	0	1	0

N=23	16	15	6	18	16	16	15	18	15	18	18	18	8	19	16	16	15	6	16	16	15	18	16	18	20	18	18	5	13	14	17	19	7	15	16	18	16	6	16	16
P	0,7	0,7	0,2	0,8	0,7	0,7	0,7	0,8	0,7	0,8	0,8	0,8	0,3	0,8	0,7	0,7	0,7	0,3	0,7	0,7	0,7	0,8	0,7	0,8	0,9	0,8	0,8	0,2	0,6	0,6	0,8	0,8	0,3	0,7	0,7	0,8	0,7	0,3	0,7	0,7
Q	0,3	0,3	0,8	0,2	0,3	0,3	0,3	0,2	0,3	0,2	0,2	0,2	0,7	0,2	0,3	0,3	0,3	0,7	0,3	0,3	0,3	0,2	0,3	0,2	0,1	0,2	0,2	0,8	0,4	0,4	0,2	0,2	0,7	0,3	0,3	0,2	0,3	0,7	0,3	0,3

Cont....

Reliabilty of Pre Test

No	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	Xt	Xt²
1	1	0	1	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0	1	1	1	1	0	0	0	0	1	1	46	2116
2	0	1	1	1	0	0	1	1	0	1	1	1	0	0	0	1	1	0	0	0	1	0	0	1	0	0	1	0	1	1	37	1369
3	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	1	0	1	1	1	1	1	45	2025
4	1	1	1	0	1	0	1	1	1	1	0	1	1	1	0	1	0	1	0	0	1	0	1	1	1	0	1	1	1	1	47	2209
5	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	1	1	30	900
6	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	0	0	1	1	0	1	46	2116
7	1	1	1	1	0	0	1	1	1	1	1	1	1	1	0	0	1	0	1	0	1	0	1	1	1	1	1	1	1	1	48	2304
8	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	0	1	1	1	51	2601
9	1	1	1	1	0	0	0	0	0	1	1	0	0	1	0	1	1	0	0	0	1	0	1	0	1	0	0	1	1	0	37	1369
10	0	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0	0	0	0	1	1	1	1	1	1	41	1681
11	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	1	0	0	0	23	529
12	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1	1	0	0	1	1	1	1	48	2304
13	1	0	0	0	0	0	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	0	0	1	0	0	1	0	1	1	37	1369
14	1	1	1	1	1	0	0	1	1	0	1	1	1	0	1	1	1	0	0	0	1	0	1	1	1	0	1	1	0	0	42	1764

																															∑xt	∑xt²
15	0	1	1	0	0	0	1	1	0	1	1	1	0	1	0	0	1	1	0	0	1	0	1	1	0	0	1	0	1	1	34	1156
16	1	0	0	0	1	0	0	1	1	1	1	1	0	0	0	1	1	1	0	0	0	1	1	0	1	0	1	1	1	0	37	1369
17	1	1	1	1	1	0	1	1	1	1	0	0	1	1	0	1	1	1	0	0	1	0	0	0	0	0	1	1	0	0	42	1764
18	1	0	0	1	1	0	0	1	1	0	1	0	0	1	0	0	1	1	0	0	1	0	1	0	0	0	1	0	1	1	36	1196
19	0	1	1	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	0	1	1	1	0	1	1	1	0	43	1849
20	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	34	1156
21	1	1	0	1	1	0	0	1	1	1	1	1	1	0	0	1	1	1	0	0	0	0	1	1	0	0	1	0	1	1	39	1321
22	1	1	0	0	0	0	1	0	1	1	0	1	1	1	1	0	1	1	0	0	0	1	0	0	0	1	1	1	0	0	34	1156
23	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0	25	625
N = 23	16	15	14	13	12	5	16	19	16	17	16	18	14	15	4	16	18	15	4	4	14	6	15	14	7	6	18	15	16	14	∑xt = 902	∑xt² = 36248
p	0,7	0,7	0,6	0,6	0,5	0,2	0,7	0,8	0,7	0,7	0,7	0,8	0,6	0,7	0,2	0,7	0,8	0,7	0,2	0,2	0,6	0,3	0,7	0,6	0,3	0,3	0,8	0,7	0,7	0,6		
q	0,3	0,3	0,4	0,4	0,5	0,8	0,3	0,2	0,3	0,3	0,3	0,2	0,4	0,3	0,8	0,3	0,2	0,3	0,8	0,8	0,4	0,7	0,3	0,4	0,7	0,7	0,2	0,3	0,3	0,4		

Appendix 13

Reliability Pre Test

To get reliability of the test, the researcher uses formula KR-20:

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

$$S_t^2 = \frac{X2}{N}$$

N= 23

$\sum Xt = 902$

$\sum Xt^2 = 36248$

$\sum pq = 9.16$

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

$$= 36248 - \left(\frac{902}{23} \right)^2 = 36248 - \frac{813604}{23} = 36248 - 35374.08 = 873.92$$

$$S_t^2 = \frac{X2}{N} = \frac{873.92}{23}$$

$$S_t^2 = 37.99$$

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

$$R_{11} = \left(\frac{70}{70-1} \right) \left(\frac{37.99 - 9.16}{37.99} \right) = \left(\frac{70}{69} \right) \left(\frac{28.83}{37.99} \right)$$

$$= (1.014)\,(0.758)$$

$$= 0.77 \; (r_{11} > 0.70 = \text{reliable})$$

Test is reliable if $r_{count} > r_{tabel}$. Based on calculation above, the test have reliable.

Reliability of Post Test

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1
2	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	0	1	1	1	0	1	1	1	1	0	0	1	0	1	0	1	0	1	1	1	1	1	0	0	0
3	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	0	1	0	1	1	1	1	1	1	1	0	1	1	1	1
4	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1
5	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	0	1	0	0	1	1	1	1	0	0	1	1	0	1
6	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	0	0	0	1	1	0	0	1	1	1
7	1	1	0	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1	0	1	0	0	1
8	1	0	1	1	1	0	1	1	0	1	1	1	1	0	1	0	0	0	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1	1	1	0	1	1	1	1	0	0	1	0	1	1	0	0	0	1	0	1	1	0	1	0
10	0	1	1	0	0	1	0	1	0	1	0	1	1	0	1	1	0	1	0	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1
11	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	1	0	0
12	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1
13	0	0	1	1	1	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	0	1	1	0	0
14	1	1	0	1	0	0	1	0	1	1	0	1	1	0	0	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1
15	1	1	0	1	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	1	0	1	1	0	0	1	0	1	1	1	1	1	1	0	1	1	0	1	1
16	0	0	1	1	1	0	1	1	0	1	0	0	0	1	0	0	0	1	1	1	0	1	1	1	1	0	0	0	0	1	1	1	1	0	1	1	1	0	1	1
17	1	1	1	1	1	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	0	1	0	1	0	1	1	1	1	1	1	0	1	1
18	0	0	1	1	0	1	0	1	0	0	1	1	0	1	0	1	1	1	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0
19	1	1	0	1	0	1	1	1	1	1	0	1	1	0	1	0	0	1	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	1	1
20	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	1	1	0	1	0	1	0	1	0	0	0	0	0	1	1	1	0	0	1	1	1	0	0	0	1
21	1	0	0	0	1	0	1	1	0	1	0	1	1	1	0	0	1	1	0	1	1	0	1	1	1	0	1	0	1	1	1	1	1	1	0	1	0	1	1	0
22	1	0	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	0	1	0	1	1	0	0	0	0	1	0	1	1	1	0	0	1	0	1	1
23	0	0	1	1	1	0	1	0	0	1	0	1	1	1	0	1	0	1	0	0	1	0	1	1	0	0	1	0	1	1	0	0	1	0	1	1	1	1	1	0

N=23	15	14	18	16	17	15	15	18	6	18	4	17	17	18	3	15	16	22	15	14	15	18	17	19	5	4	19	6	17	15	21	19	16	15	16	22	17	15	17	16
P	0,7	0,6	0,8	0,7	0,7	0,7	0,7	0,8	0,2	0,8	0,2	0,7	0,7	0,8	0,1	0,7	0,7	0,9	0,7	0,6	0,7	0,8	0,7	0,8	0,2	0,2	0,8	0,2	0,7	0,7	0,9	0,8	0,7	0,7	0,7	0,9	0,7	0,7	0,7	0,7
Q	0,3	0,4	0,2	0,3	0,3	0,3	0,3	0,2	0,8	0,2	0,8	0,3	0,3	0,2	0,9	0,3	0,3	0,1	0,3	0,4	0,3	0,2	0,3	0,2	0,8	0,8	0,2	0,8	0,3	0,3	0,1	0,2	0,3	0,3	0,3	0,1	0,3	0,3	0,3	0,3

Cont....

Reliability of Post Test

No	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	Xt	Xt²
1	1	0	1	0	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	50	2500
2	0	1	1	0	0	1	1	1	0	1	0	1	0	0	0	0	1	0	1	0	1	0	0	1	1	0	1	0	0	0	40	1600
3	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	1	0	1	1	1	0	0	51	2601
4	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	1	1	1	1	1	1	0	0	52	2704
5	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	1	1	0	0	1	1	1	0	0	0	1	0	33	1089
6	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	0	0	1	1	0	0	47	2209
7	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	1	0	1	0	0	0	1	1	1	1	1	1	0	1	49	2401
8	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	0	54	2916
9	1	1	1	0	0	1	1	0	0	1	0	0	0	1	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	0	42	1764
10	0	0	1	0	0	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	0	0	0	0	1	1	1	0	0	44	1936
11	1	1	1	0	0	1	1	1	0	0	0	1	0	0	0	0	1	1	0	1	0	0	1	0	1	1	1	0	0	0	30	900
12	0	1	1	0	1	0	1	0	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	51	2601
13	1	0	0	0	0	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0	0	1	0	1	1	0	1	0	44	1936
14	1	1	1	0	0	0	0	1	1	0	0	1	1	0	1	0	1	0	1	0	1	0	1	1	1	1	1	1	0	0	45	2025
15	0	1	1	0	0	1	1	1	0	1	0	1	0	1	1	0	1	1	0	1	1	0	1	1	1	0	1	0	0	1	47	2209

№																															∑xt	∑xt²
16	1	0	0	0	0	1	0	1	1	1	0	1	0	0	1	0	1	1	0	1	0	1	1	0	1	1	1	1	0	0	41	1681
17	1	1	1	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0	0	0	0	0	1	1	0	0	44	1936
18	1	0	0	0	1	0	1	1	1	0	1	0	0	1	0	0	1	1	1	0	1	0	1	0	1	1	1	0	0	1	42	1764
19	0	1	1	0	0	0	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	0	51	2601
20	1	1	1	0	0	1	1	1	0	0	0	1	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	38	1444
21	1	1	0	1	0	1	0	1	1	1	0	0	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0	0	1	43	1849
22	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1	0	0	0	0	1	1	0	0	44	1936
23	0	0	0	0	0	1	0	1	0	1	0	1	1	1	0	0	0	0	1	1	1	0	1	1	1	0	1	1	0	0	40	1600
N=23	17	15	15	2	4	17	16	21	16	18	4	17	15	15	16	3	18	15	17	15	15	5	16	17	16	14	18	15	3	4		
p	0,7	0,7	0,7	0,1	0,2	0,7	0,7	0,9	0,7	0,8	0,2	0,7	0,7	0,7	0,7	0,1	0,8	0,7	0,7	0,7	0,7	0,2	0,7	0,7	0,7	0,6	0,8	0,7	0,1	0,1	∑xt=1022	∑xt²=46202
q	0,3	0,3	0,3	0,9	0,8	0,3	0,3	0,1	0,3	0,2	0,8	0,3	0,3	0,3	0,3	0,9	0,2	0,3	0,3	0,3	0,3	0,8	0,3	0,3	0,3	0,4	0,2	0,3	0,9	0,9		

Appendix 15

Reliability Post-Test

To get reliability of the test, the researcher uses formula KR-20:

$$R_{11} = \left(\frac{k}{k-1}\right)\left(\frac{S_{t2} - \sum pq}{S_{t2}}\right)$$

$$S_t^2 = \frac{X2}{N}$$

N = 23

$\sum Xt = 1022$

$\sum Xt^2 = 46202$

$\sum pq = 8.41$

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

$$= 46202 - \left(\frac{1022}{23}\right)^2 = 46202 - \frac{1044484}{23} = 46202 - 45412.34 = 789.66$$

$$S_t^2 = \frac{X2}{N} = \frac{789.66}{23}$$

$$S_t^2 = 27.66$$

$$R_{11} = \left(\frac{k}{k-1}\right)\left(\frac{S_{t2} - \sum pq}{S_{t2}}\right)$$

$$R_{11} = \left(\frac{70}{70-1}\right)\left(\frac{34.33 - 8.41}{34.33}\right) = \left(\frac{70}{69}\right)\left(\frac{25.92}{34.33}\right)$$

$$= (1.014)(0.75)$$
$$= 0.76 \ (r_{11} > 0.70 = \text{reliable})$$

Test is reliable if $r_{count} > r_{tabel}$. Based on calculation above, the test have reliable.

Appendix 16

Score of Experimental Class and Control Class on Pre Test

1. **PRE TEST**
   a. **Pre Test Score of Experimental Class**

No.	The Initial Name of Students	Score Pre-Test
1	AQ	64
2	AA	40
3	AR	32
4	ASR	52
5	DAL	60
6	DZ Hsb	46
7	DA	52
8	EA	56
9	ES	64
10	FP	56
11	FK	78
12	HR	80
13	HSY	58
14	IM	56
15	IA	64
16	IK	70
17	IHB	64
18	KAK	64
19	KM	52
20	LT	64
21	LK	78
22	MA	44
23	MK	64

24	MM	66
25	MS Nst	68
26	MDR	82
27	MR	68
28	MZ	80
29	MRi	68
30	N Hsb	64
31	NF	70
32	RAS	84
33	RI	72
34	R Hrp	46
35	SH	78
36	S Harahap	66
37	SW Hrp	68
38	SR	80
39	SW	68
40	YN Hrp	72
Total		**2542**

b. Pre Test Score of Control Class

No.	The Initial Name of Students	Score Pre-Test
1	AM	60
2	AR Nst	32
3	AS	78
4	AA	66
5	A Nst	46
6	AP	62
7	AR	50
8	AP	50
9	FYS	62
10	FA	60
11	H	56
12	HH	58
13	HA	62
14	KK	58
15	LS	60
16	LAR	56
17	MS	30
18	M Hrp	62
19	M. Shoddiq	48
20	NI	62
21	NUS	80
22	NA	58
23	NS	78
24	N. Ainun	62
25	N	46
26	NK	66

27	PM	74
28	RN	82
29	RA	66
30	RK	72
31	RM	78
32	SRA	66
33	SN	74
34	US	72
35	WS	62
36	YR	46
37	YA	78
38	YH	60
39	Y. Annisah	56
40	NMN	66
Total		**2480**

Appendix 17

RESULT OF NORMALITY TEST IN PRE-TEST

A. Result of Normality Test of XI MIA 2

1. The score of grade XI MIA 2 in pre-test from low score to high score:

30	38	40	46	50	52	52	52	58	60
60	60	62	62	62	62	64	64	64	64
64	64	64	66	66	66	68	68	68	70
70	72	72	72	72	76	76	76	76	78
80	82								

2. High   = 82

Low   = 30

Range   = High – Low

   = 82 – 30

   = 52

3. Total of classes   = 1 + 3,3 log (n)

                  = 1 + 3,3 log (42)

                  = 1 + 3,3 (1.62)

                  = 1 + 5.35

                  = 6.35 / 6

4. Length of classes $= \frac{range}{total\ of\ class} = \frac{52}{6} = 8.67 = 9$

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
75 – 83	7	79	+2	14	4	28
66 – 74	12	70	+1	12	1	12
57 – 65	**15**	**61**	**0**	**0**	**0**	**0**
48 – 56	4	52	-1	-4	1	4
39 – 47	2	43	-2	-4	4	8
30 – 38	2	34	-3	-6	9	18
i = 9	**42**	-	-	**12**	-	**70**

$$Mx = M^1 + i\frac{\sum fx^1}{N}$$

$$= 61 + 9\left(\frac{12}{42}\right)$$

$$= 61 + 9\,(0.286)$$

$$= 61 + (2.574)$$

$$= 63.57$$

$$SD_t = i\sqrt{\frac{\sum fx'^2}{n} - \left(\frac{\sum fx'}{n}\right)^2}$$

$$= 9\sqrt{\frac{70}{42} - \left(\frac{12}{42}\right)^2}$$

$$= 9\sqrt{1.667 - (0.286)^2}$$

$$= 9\sqrt{1.667 - 0.082}$$

$$= 9\sqrt{1.585}$$

$$= 9 \times 1.259$$

$$= 11.33$$

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	$\frac{(f_0\text{-}f_h)^2}{f_h}$
	83.5	1.76	0.4608				
75 – 83				0.13	5.46	7	0.282
	74.5	0.96	0.3315				
66 – 74				0.26	10.92	12	0.099
	65.5	0.17	0.0675				
57 – 65				-0.16	-6.72	15	-1.232
	56.5	0.62	0.2324				
48 – 56				0.15	6.3	4	-0.365
	47.5	-1.42	0.7780				
39 – 47				0.06	2.52	2	-0.206
	38.5	-2.13	0.01659				
30 – 38				0.02	0.84	2	1.381
	29.5	-3.01	0.00131				
						X^2	-0.041

Based on the table above, the reseracher found that x^2_{count}= -0.041 while x^2_{table}= 11.070. Because x^2_{count} < x^2_{table} (-0.041 < 11.070) with degree of freedom (dk) = 6–1 = 5 and significant level α = 5%, distribution of XI MIA 2 class (pre-test) is normal.

6. Median

No	Interval	F	Fk
1	30-38	2	2
2	39-47	2	4
3	48-56	4	8
4	**57-65**	**15**	23
5	66-74	12	35
6	75-83	7	42

Position of Me in the interval of classes is number 4, that:

Bb = 56.5

F = 8

fm = 15

i = 9

n = 42

1/2n = 21

So :

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

$$= 56.5 + 9\left(\frac{21-8}{15}\right)$$

$$= 56.5 + 9\left(\frac{13}{15}\right)$$

$$= 56.5 + 9\ (0.87)$$

$$= 56.5 + 7.83$$

$$= 64.33$$

7. Modus

No	Interval	F	Fk
1	30-38	2	2
2	39-47	2	4
3	48-56	4	8
4	**57-65**	**15**	23
5	66-74	12	35
6	75-83	7	42

L   = 56.5

d_1 = 11

d_2 = 3

i   = 9

So,

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

$$= 56.5 + \frac{11}{11+3} 9$$

$$= 56.5 + \frac{11}{14} 9$$

$$= 56.5 + 0.79 (9)$$

$$= 56.5 + 7.11$$

$$= 63.61$$

RESULT OF NORMALITY TEST IN PRE TEST

A. Result of the Normality Test of XI MIA 3 in Pre-Test

1. Score of XI MIA 3 class in pre-test from low to high score

32	40	44	46	46	52	52	52	56	56
58	60	60	60	64	64	64	64	64	64
64	64	66	66	68	68	68	68	68	70
70	72	72	78	78	78	80	80	82	84

2. High $= 84$

Low $= 32$

Range $=$ High $-$ Low

$\qquad = 84 - 32$

$\qquad = 52$

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

$\qquad = 1 + 3,3 \log (40)$

$\qquad = 1 + 3,3 (1.60)$

$\qquad = 1 + 5.28$

$\qquad = 6.28 \ / \ 6$

4. Length of Classes $= \dfrac{range}{total\ of\ class}$ $= \dfrac{52}{6} = 8.67 = 9$

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
77 – 85	7	81	+2	14	4	28
68 – 76	9	72	+1	9	1	9
59 – 67	**13**	**63**	**0**	**0**	**0**	**0**
50 – 58	6	54	-1	-6	1	6
41 – 49	3	45	-2	-6	4	12
32 – 40	2	36	-3	-6	9	18
i = 9	**40**	-	-	**5**	-	**73**

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

$$= 63 + 9 \left(\frac{5}{40}\right)$$

$$= 63 + 9 \ (0.125)$$

$$= 63 + (1.125)$$

$$= 64.13$$

$$SD_t = i \sqrt{\frac{\Sigma fx'^2}{n} - \left(\frac{\Sigma fx'}{n}\right)^2}$$

$$= 9 \sqrt{\frac{73}{40} - \left(\frac{5}{40}\right)^2}$$

$$= 9 \sqrt{1.825 - (0.125)^2}$$

$$= 9 \sqrt{1.825 - 0.016}$$

$$= 9 \sqrt{1.809}$$

$$= 9 \ x \ 1.345$$

$$= 12.11$$

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	$\frac{(f_0-f_h)^2}{f_h}$
	85.5	1.76	0.4608				
77 – 85				0.11	4.4	7	0.591
	76.5	1.02	0.3461				
68 – 76				0.24	9.6	9	-0.063
	67.5	0.28	0.1103				
59 – 67				-0.21	-8.4	13	-0.548
	58.5	-0.47	0.31918				
50 – 58				0.21	8.4	6	-0.286
	49.5	-1.21	0.11314				
41 – 49				0.09	3.6	3	-0.167
	40.5	-1.95	0.02559				
32 – 40				0.02	0.8	2	1.5
	31.5	-2.69	0.00357				
						X^2	1.027

Based on the table above, the reseracher found that $x^2_{count}= 1.027$ while $x^2_{table}= 11.070$. Because $x^2_{count} < x^2_{table}$ (1.027 < 11.070) with degree of freedom (dk) = 6–1 = 5 and significant level α = 5%, distribution of XI MIA 3 class (pre-test) is normal.

6. Median

No	Interval	F	Fk
1	32-40	2	2
2	41-49	3	5
3	50-58	6	**11**
4	**59-67**	**13**	24
5	68-76	9	33
6	77-85	7	40

Position of Me in the interval of classes is number 4, that:

Bb $\quad = 58.5$

F $\quad = 11$

fm $\quad = 13$

i $\quad = 9$

n $\quad = 40$

1/2n $\quad = 20$

So :

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

$$= 58.5 + 9 \left(\frac{20-11}{13} \right)$$

$$= 58.5 + 9 \left(\frac{9}{13} \right)$$

$$= 58.5 + 9 \ (0.692)$$

$$= 58.5 + 6.228$$

$$= 64.73$$

7. Modus

No	Interval	F	Fk
1	32-40	2	2
2	41-49	3	5
3	50-58	6	11
4	**59-67**	**13**	24
5	68-76	9	33
6	77-85	7	40

$L = 58.5$

$d_1 = 7$

$d_2 = 4$

$i = 9$

So,

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

$= 58.5 + \dfrac{7}{7+4} 9$

$= 58.5 + \dfrac{7}{11} 9$

$= 58.5 + 0.636\,(9)$

$= 58.5 + 5.724$

$= 64.22$

RESULT OF NORMALITY TEST IN PRE TEST

A. Result of the Normality Test of XI MIA 4 in Pre-Test

1. Score of XI MIA 4 class in pre-test from low to high score

30	32	46	46	46	48	50	50	56	56
56	58	58	58	60	60	60	62	62	62
62	62	62	62	66	66	66	66	66	72
72	74	74	78	78	78	78	80	80	82

2. High = 82

Low = 30

Range = High – Low

$\quad\quad$ = 82 – 30

$\quad\quad$ = 52

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

$\quad\quad\quad\quad$ = 1 + 3,3 log (40)

$\quad\quad\quad\quad$ = 1 + 3,3 (1.60)

$\quad\quad\quad\quad$ = 1 + 5.28

$\quad\quad\quad\quad$ = 6.28 / 6

4. Length of Classes = $\dfrac{range}{total\ of\ class}$ $\quad = \dfrac{52}{6} = 8.67 = 9$

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
75 – 83	7	79	+2	14	4	28
66 – 74	9	70	+1	9	1	9
57 – 65	**13**	**61**	**0**	**0**	**0**	**0**
48 – 56	6	52	-1	-6	1	6
39 – 47	3	43	-2	-6	4	12
30 – 38	2	34	-3	-6	9	18
i = 9	**40**	-	-	**5**	-	**73**

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

$$= 61 + 9\left(\frac{5}{40}\right)$$

$$= 61 + 9\,(0.125)$$

$$= 61 + (1.125)$$

$$= 62.13$$

$$SD_t = i\sqrt{\frac{\Sigma fx'^2}{n} - \left(\frac{\Sigma fx'}{n}\right)^2}$$

$$= 9\sqrt{\frac{73}{40} - \left(\frac{5}{40}\right)^2}$$

$$= 9\sqrt{1.825 - (0.125)^2}$$

$$= 9\sqrt{1.825 - 0.016}$$

$$= 9\sqrt{1.809}$$

$$= 9 \times 1.345$$

$$= 12.16$$

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	$\frac{(f_0-f_h)^2}{f_h}$
	83.5	1.76	0.4608				
75 – 83				0.11	4.4	7	0.591
	74.5	1.02	0.3461				
66 – 74				0.24	9.6	9	-0.063
	65.5	0.28	0.1103				
57 – 65				-0.21	-8.4	13	-0.548
	56.5	-0.46	0.32276				
48 – 56				0.21	8.4	6	-0.286
	47.5	-1.20	0.11507				
39 – 47				-0.15	-6	3	0.5
	38.5	-1.94	0.02619				
30 – 38				0.02	0.8	2	1.5
	29.5	-2.69	0.00357				
						X^2	1.694

Based on the table above, the reseracher found that $x^2_{count}= 1.694$ while $x^2_{table}= 11.070$. Because $x^2_{count} < x^2_{table}$ (1.694 < 11.070) with degree of freedom (dk) = 6–1 = 5 and significant level $\alpha = 5\%$, distribution of XI MIA 4 class (pre-test) is normal.

6. Median

No	Interval	F	Fk
1	30-38	2	2
2	39-47	3	5
3	48-56	6	**11**
4	**57-65**	**13**	24
5	66-74	9	33
6	75-83	7	40

Position of Me in the interval of classes is number 4, that:

Bb $= 56.5$

F $= 11$

fm $= 13$

i $= 9$

n $= 40$

1/2n $= 20$

So :

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

$$= 56.5 + 9\left(\frac{20-11}{13}\right)$$

$$= 56.5 + 9\left(\frac{9}{13}\right)$$

$$= 56.5 + 9\,(0.692)$$

$$= 56.5 + 6.228$$

$$= 62.73$$

7. Modus

No	Interval	F	Fk
1	30-38	2	2
2	39-47	3	5
3	48-56	6	11
4	**57-65**	**13**	24
5	66-74	9	33
6	75-83	7	40

L $\quad$ = 56.5

d_1 $\quad$ = 7

d_2 $\quad$ = 4

i $\quad$ = 9

So,

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

$$= 56.5 + \frac{7}{7+4} 9$$

$$= 56.5 + \frac{7}{11} 9$$

$$= 56.5 + 0.636 \, (9)$$

$$= 56.5 + 5.724$$

$$= 62.22$$

Appendix 18

HOMOGENEITY TEST (PRE-TEST)

Calculation of parameter to get variant of the first class as experimental class sample and variant of the second class as control class sample are used homogeneity test by using formula:

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

Hypotheses:

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

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

A. Variant of XI MIA 2 class is:

No	Xi	Xi^2
1	30	900
2	38	1444
3	40	1600
4	46	2116
5	50	2500
6	52	2704
7	52	2704
8	52	2704
9	58	3364
10	60	3600
11	60	3600
12	60	3600
13	62	3844
14	62	3844
15	62	3844

16	62	3844
17	64	4096
18	64	4096
19	64	4096
20	64	4096
21	64	4096
22	64	4096
23	64	4096
24	66	4356
25	66	4356
26	66	4356
27	68	4624
28	68	4624
29	68	4624
30	70	4900
31	70	4900
32	72	5184
33	72	5184
34	72	5184
35	72	5184
36	76	5776
37	76	5776
38	76	5776
39	76	5776
40	78	6084
41	80	6400
42	82	6724
Total	**2420**	**160872**

n   = 42

$\sum xi = 2420$

$\sum xi^2 = 160872$

So:

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

$$= \frac{42(160872)-(2420)^2}{42(42-1)}$$

$$= \frac{6756624-5856400}{42(41)}$$

$$= \frac{900224}{1722}$$

$= 522.78$

B. Variant of XI MIA 3 class is:

No	Xi	Xi^2
1	32	1024
2	40	1600
3	44	1936
4	46	2116
5	46	2116
6	52	2704
7	52	2704
8	52	2704
9	56	3136
10	56	3136
11	58	3364
12	60	3600
13	60	3600
14	60	3600
15	64	4096

16	64	4096
17	64	4096
18	64	4096
19	64	4096
20	64	4096
21	64	4096
22	64	4096
23	66	4356
24	66	4356
25	68	4624
26	68	4624
27	68	4624
28	68	4624
29	68	9248
30	70	4900
31	70	4900
32	72	5184
33	72	5184
34	78	6084
35	78	6084
36	78	6084
37	80	6400
38	80	6400
39	82	6724
40	84	7056
Total	**2542**	**166940**

n   = 40

$\sum xi = 2542$

$\sum xi^2 = 166940$

So:

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

$$= \frac{40(166940) - (2542)^2}{40\,(40-1)}$$

$$= \frac{6677600 - 6461764}{40(39)}$$

$$= \frac{215836}{1560}$$

$$= 138.36$$

C. Variant of XI MIA 4 class is:

No	Xi	Xi^2
1	30	900
2	32	1024
3	46	2116
4	46	2116
5	46	2116
6	48	2304
7	50	2500
8	50	2500
9	56	2704
10	56	3136
11	56	3136
12	58	3364
13	58	3364
14	58	3364
15	60	3600

16	60	3600
17	60	3600
18	62	3844
19	62	3844
20	62	3844
21	62	3844
22	62	3844
23	62	3844
24	62	3844
25	66	4356
26	66	4356
27	66	4356
28	66	4356
29	66	4356
30	72	5184
31	72	5184
32	74	5476
33	74	5476
34	78	6084
35	78	6084
36	78	6084
37	78	6084
38	80	6400
39	80	6400
40	82	6724
Total	**2480**	**159744**

n   = 40

$\sum xi = 2480$

$\sum xi^2 = 159744$

So:

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

$$= \frac{40(159744) - (2480)^2}{40\,(40-1)}$$

$$= \frac{6389760 - 6150400}{40(39)}$$

$$= \frac{239360}{1560}$$

$$= 153.44$$

The formula was used to test hypothesis was:

1. XI MIA 2 and XI MIA 3

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

So:

$$F = \frac{522.78}{138.36}$$

$$= 3.78$$

After doing the calculation, researcher found that $F_{count} = 3.78$ with α 5% and dk = 42 and 40 from the distribution list F, researcher found that $F_{table} = 4.08$ and 4.10, cause $F_{count} < F_{table}$ (3.78 < 4.08 and 4.10). So, there is no difference in 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 MIA 4

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

So:

$$F = \frac{522.78}{153.44}$$

$$= 3.41$$

After doing the calculation, researcher found that $F_{count} = 3.41$ with α 5% and dk = 42 and 40 from the distribution list F, researcher found that $F_{table} = 4.08$ and 4.10, cause $F_{count} < F_{table}$ (3.41 < 4.08 and 4.10). So, there is no difference in variant between the XI MIA 2 class and XI MIA 4 class. It means that the variant is homogenous.

3. XI MIA 3 and XI MIA 4

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

So:

$$F = \frac{153.44}{138.36}$$

$$= 1.12$$

After doing the calculation, researcher found that $F_{count} = 1.12$ with α 5% and dk = 40 from the distribution list F, researcher found that $F_{table} = 4.10$, cause $F_{count} < F_{table}$ (1.12 < 4.10). So, there is no difference in variant between XI MIA 3 class and XI MIA 4 class. It means that the variant is homogenous.

Appendix 19

Score of Experimental Class and Control Class on Post Test

1. **Score of Experimental Class Post test using Make a Match Technique**

No.	The Initial Name of Students	Score Post Test
1	AQ	74
2	AA	56
3	AR	76
4	ASR	70
5	DAL	88
6	DZ Hsb	70
7	DA	84
8	EA	88
9	ES	70
10	FP	68
11	FK	84
12	HR	72
13	HSY	74
14	IM	84
15	IA	74
16	IK	76
17	IHB	74
18	KAK	90
19	KM	74
20	LT	76
21	LK	76
22	MA	60
23	MK	62
24	MM	78

25	MS Nst	74
26	MDR	78
27	MR	84
28	MZ	74
29	MRi	50
30	N Hsb	84
31	NF	84
32	RAS	90
RI	Rona Indah	86
34	R Hrp	62
35	SH	68
36	S Harahap	88
37	SW Hrp	88
38	SR	90
39	SW	78
40	YN Hrp	90
Total		**3046**

2. Score of Control Class Post test using Conventional Technique

No.	The Initial Name of Students	Score Post Test
1	AM	42
2	AR Nst	58
3	AS	54
4	AA	50
5	A Nst	62
6	AP	66
7	AR	68
8	DP	68
9	FYS	64
10	FA	66
11	H	62
12	HH	68
13	HA	70
14	KK	64
15	LS	76
16	LAR	66
17	MS	68
18	M Hrp	76
19	M. Shoddiq	66
20	NI	66
21	NUS	72
22	NA	68
23	NS	76
24	N. Ainun	70
25	N	68
26	NK	80
27	PM	68

28	RN	80
29	RA	70
30	RK	82
31	RM	70
32	SRA	58
33	SN	72
34	US	82
35	WS	70
36	YR	82
37	YA	72
38	YH	82
39	Y. Annisah	72
40	NMN	82
Total		**2756**

Appendix 20

RESULT OF NORMALITY TEST IN POST TEST

A. Result of Normality Test of XI MIA 3 in Post Test

8. Score of XI MIA 3 class in post-test from low to high score

50	56	60	62	62	68	68	70	70	70
70	72	74	74	74	74	74	74	74	76
76	76	76	78	78	78	84	84	84	84
84	86	86	88	88	88	88	90	90	90

9. High = 90

Low = 50

Range = High – Low

= 90 – 50

= 40

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

= 1 + 3,3 log (40)

= 1 + 3,3 (1.60)

= 1 + 5.28

= 6.28 / 6

11. Length of Classes = $\frac{range}{total\ of\ class}$ = $\frac{40}{6}$ = 6.67 = 7

12. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
85 – 91	8	88	+2	16	4	32
78 – 84	9	81	+1	9	1	9
71 – 77	**12**	**74**	**0**	**0**	**0**	**0**
64 – 70	6	67	-1	-6	1	6
57 – 63	3	60	-2	-6	4	12
50 – 56	2	53	-3	-6	9	18
i = 7	**40**	-	-	**7**	-	**77**

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

$$= 74 + 7 \left(\frac{7}{40}\right)$$

$$= 74 + 7 \, (0.175)$$

$$= 74 + (1.225)$$

$$= 75.23$$

$$SD_t = i \sqrt{\frac{\Sigma fx'^2}{n} - \left(\frac{\Sigma fx'}{n}\right)^2}$$

$$= 7 \sqrt{\frac{77}{40} - \left(\frac{7}{40}\right)^2}$$

$$= 7 \sqrt{1.925 - (0.175)^2}$$

$$= 7 \sqrt{1.925 - 0.031}$$

$$= 7 \sqrt{1.89}$$

$$= 7 \times 1.375$$

$$= 9.63$$

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	$\frac{(f_0-f_h)^2}{f_h}$
	91.5	1.69	0.4545				
85 – 91				0.12	4.8	8	0.667
	84.5	0.96	0.3315				
78 – 84				0.24	9.6	9	-0.062
	77.5	0.24	0.0948				
71 – 77				-0.22	-8.8	12	-0.364
	70.5	-0.49	0.31207				
64 – 70				0.20	8	6	-0.25
	63.5	-1.22	0.11123				
57 – 63				0.09	3.6	3	-0.167
	56.5	-1.94	0.02619				
50 – 56				0.02	0.8	2	1.5
	49.5	-2.67	0.00379				
						X^2	1.324

Based on the table above, the reseracher found that $x^2_{count}= 1.324$ while $x^2_{table}= 11.070$. Because $x^2_{count} < x^2_{table}$ (1.324 < 11.070) with degree of freedom (dk) = 6–1 = 5 and significant level α = 5%, distribution of XI MIA 3 class (post-test) is normal.

13. Median

No	Interval	F	Fk
1	50-56	2	2
2	57-63	3	5
3	64-70	6	**11**
4	**71-77**	**12**	23
5	78-84	9	32
6	85-91	8	40

Position of Me in the interval of classes is number 4, that:

Bb = 70.5

F = 11

fm = 12

i = 7

n = 40

1/2n = 20

So :

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

$$= 70.5 + 7 \left(\frac{20-11}{12} \right)$$

$$= 70.5 + 7 \left(\frac{9}{12} \right)$$

$$= 70.5 + 7 \ (0.75)$$

$$= 70.5 + 5.25$$

$$= 75.75$$

14. Modus

No	Interval	F	Fk
1	50-56	2	2
2	57-63	3	5
3	64-70	6	11
4	**71-77**	**12**	23
5	78-84	9	32
6	85-91	8	40

L $= 70.5$

d_1 $= 6$

d_2 $= 3$

i $= 7$

So,

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

        $= 70.5 + \dfrac{6}{6+3}(7)$

        $= 70.5 + \dfrac{6}{9}(7)$

        $= 70.5 + 0.67\,(7)$

        $= 70.5 + 4.69$

        $= 75.19$

B. Result of the Normality Test of XI MIA 4 in Post Test

1. Score of XI MIA 4 class in post-test from low to high score

42	50	54	58	58	62	62	64	64	66
66	66	66	66	68	68	68	68	68	68
68	70	70	70	70	70	72	72	72	72
76	76	76	80	80	82	82	82	82	82

2. High $= 82$

Low $= 42$

Range $=$ High $-$ Low

$= 82 - 42$

$= 40$

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

$= 1 + 3,3 \log (40)$

$= 1 + 3,3 (1.60)$

$= 1 + 5.28$

$= 6.28 \ / \ 6$

4. Length of Classes $= \dfrac{range}{total\ of\ class}$ $= \dfrac{40}{6} = 6.67 = 7$

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
77 – 83	7	80	+2	14	4	28
70 – 76	12	73	+1	12	1	12
63 – 69	**14**	**66**	**0**	**0**	**0**	**0**
56 – 62	4	59	-1	-4	1	4
49 – 55	2	52	-2	-2	4	8
42 – 48	1	45	-3	-3	9	9
$i = 7$	**40**	-	-	**17**	-	**61**

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

$$= 66 + 7 \left(\frac{17}{40}\right)$$

$$= 66 + 7\,(0.425)$$

$$= 66 + (2.975)$$

$$= 68.98$$

$$SD_t = i\sqrt{\frac{\Sigma fx'^2}{n} - \left(\frac{\Sigma fx'}{n}\right)^2}$$

$$= 7\sqrt{\frac{61}{40} - \left(\frac{17}{40}\right)^2}$$

$$= 7\sqrt{1.525 - (0.425)^2}$$

$$= 7\sqrt{1.525 - 0.181}$$

$$= 7\sqrt{1.344}$$

$$= 7 \times 1.159$$

$$= 8.11$$

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	$\frac{(f_0\text{-}f_h)^2}{f_h}$
	83.5	1.79	0.4633				
77 – 83				0.14	5.6	7	0.25
	76.5	0.93	0.3238				
70 – 76				0.30	12	12	0
	69.5	0.06	0.0239				
63 – 69				-0.19	-7.6	14	-0.842
	62.5	-0.80	0.21186				
56 – 62				0.16	6.4	4	-0.375
	55.5	-1.66	0.04846				
49 – 55				0.04	1.6	2	0.25
	48.5	-2.53	0.00570				
42 – 48				0.01	0.4	1	1.5
	41.5	-3.39	0.00035				
						X^2	0.783

Based on the table above, the reseracher found that $x^2_{count}= 0.783$ while $x^2_{table}= 11.070$. Because $x^2_{count} < x^2_{table}$ (0.783 < 11.070) with degree of freedom (dk) = 6–1 = 5 and significant level α = 5%, distribution of XI MIA 4 class (post-test) is normal.

6. Median

No	Interval	F	Fk
1	42-48	1	1
2	49-55	2	3
3	56-62	4	7
4	**63-69**	**14**	21
5	70-76	12	33
6	77-83	7	40

Position of Me in the interval of classes is number 4, that:

Bb = 62.5

F = 7

fm = 14

i = 7

n = 40

1/2n = 20

So :

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

$$= 62.5 + 7 \left(\frac{20-7}{14} \right)$$

$$= 62.5 + 7 \left(\frac{13}{14} \right)$$

$$= 62.5 + 7 \ (0.93)$$

$$= 62.5 + 6.51$$

$$= 69.01$$

7. Modus

No	Interval	F	Fk
1	42-48	1	1
2	49-55	2	3
3	56-62	4	7
4	**63-69**	**14**	21
5	70-76	12	33
6	77-83	7	40

L $= 62.5$

$d_1 = 10$

$d_2 = 2$

i $= 7$

So,

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

$= 62.5 + \dfrac{10}{10+2} 7$

$= 62.5 + \dfrac{10}{12} 7$

$= 62.5 + 0.83\ (7)$

$= 62.5 + 5.81$

$= 68.31$

Appendix 21

HOMOGENEITY TEST (POST-TEST)

Calculation of parameter to get variant of the first class as experimental class sample by using Make a Match technique and variant of the second class as control class sample by using conventional technique 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 : $\delta_1^2 \neq \delta_2^2$

D. Variant of XI MIA 3 class is:

No	Xi	Xi^2
1	50	2500
2	56	3136
3	60	3600
4	62	3844
5	62	3844
6	68	4624
7	68	4624
8	70	4900
9	70	4900
10	70	4900
11	70	4900
12	72	5184
13	74	5476
14	74	5476
15	74	5476

16	74	5476
17	74	5476
18	74	5476
19	74	5476
20	76	5776
21	76	5776
22	76	5776
23	76	5776
24	78	6084
25	78	6084
26	78	6084
27	84	7056
28	84	7056
29	84	7056
30	84	7056
31	84	7056
32	84	7056
33	86	7396
34	88	7744
35	88	7744
36	88	7744
37	88	7744
38	90	8100
39	90	8100
40	90	8100
Total	**3046**	**235652**

n   = 40

$\sum xi = 3046$

$\sum xi^2 = 235652$

So:

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

$$= \frac{40(235652) - (3046)^2}{40\,(40-1)}$$

$$= \frac{9426080 - 9278116}{40(39)}$$

$$= \frac{149376}{1560}$$

$$= 94.85$$

E. Variant of XI MIA 4 class is:

No	Xi	Xi^2
1	42	1764
2	50	2500
3	54	2916
4	58	3364
5	58	3364
6	62	3844
7	62	3844
8	64	4096
9	64	4096
10	66	4356
11	66	4356
12	66	4356
13	66	4356
14	66	4356
15	68	4624
16	68	4624
17	68	4624
18	68	4624

19	68	4624
20	68	4624
21	68	4624
22	70	4900
23	70	4900
24	70	4900
25	70	4900
26	70	4900
27	72	5184
28	72	5184
29	72	5184
30	72	5184
31	76	5776
32	76	5776
33	76	5776
34	80	6400
35	80	6400
36	82	6724
37	82	6724
38	82	6724
39	82	6724
40	82	6724
Total	**2756**	**192920**

n $= 40$

$\sum xi = 2756$

$\sum xi^2 = 192920$

So:

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

$$= \frac{40(192920) - (2756)^2}{40\,(40-1)}$$

$$= \frac{7716800 - 7595536}{40(39)}$$

$$= \frac{121264}{1560}$$

$$= 77.73$$

The Formula was used to test hypothesis was:

1. XI MIA 3 and XI MIA 4 :

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

So:

$$F = \frac{94.85}{77.73}$$

$$= 1.22$$

After doing the calculation, researcher found that $F_{count} = 1.22$ with α 5% and

dk = 40 and 40 from the distribution list F, researcher found that $F_{table} = 4.10$

cause $F_{count} < F_{table}$ (1.22 < 4.10). So, there is no difference in variant between the

XI MIA 3 class and XI MIA 4 class. It means that the variant is homogenous.

Appendix 22

T_{test} OF THE BOTH AVERAGES IN PRE-TEST

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

So:

$$Tt = \frac{M_1 - M_2}{\sqrt{\left(\dfrac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}\right)\left(\dfrac{1}{n_1} + \dfrac{1}{n_2}\right)}}$$

$$Tt = \frac{64.13 - 62.13}{\sqrt{\left(\dfrac{(40 - 1)138.36 + (40 - 1)153.44}{40 + 40 - 2}\right)\left(\dfrac{1}{40} + \dfrac{1}{40}\right)}}$$

$$Tt = \frac{2}{\sqrt{\left(\dfrac{39(138.36) + 39(153.44)}{78}\right)(0.025 + 0.025)}}$$

$$Tt = \frac{2}{\sqrt{\left(\dfrac{(5396.04) + (5984.16)}{78}\right)(0.05)}}$$

$$Tt = \frac{2}{\sqrt{\left(\dfrac{11380.2}{78}\right)(0.05)}}$$

$$Tt = \frac{2}{\sqrt{(145.9)(0.05)}}$$

$$Tt = \frac{2}{\sqrt{7.295}}$$

$$Tt = \frac{2}{2.701}$$

$$Tt = 0.740$$

Based on researcher calculation result of the homogeneity test of the both averages, researcher found that $t_{count} = 0.740$ with opportunity $(1 - \alpha) = 1 - 5\% = 95\%$

and $dk = n_1 + n_2 - 2 = 40 + 40 - 2 = 78$, reseracher found that $t_{table} = 2.000$, because $t_{count} < t_{table}$ (0.740 < 2.000). So, H_a was rejected, it means that there is no difference in average between experimental class and control class in pre test.

Appendix 23

T_{test} OF THE BOTH AVERAGES IN POST – TEST

The formula was used to analyse homogeneity test of the both averages in post test was t-test, as below:

$$Tt = \frac{M_1 - M_2}{\sqrt{\left(\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

$$Tt = \frac{75.23 - 68.98}{\sqrt{\left(\frac{(40 - 1)\ 94.85\ + \ (40 - 1)77.73}{40 + 40 - 2}\right)\left(\frac{1}{40} + \frac{1}{40}\right)}}$$

$$Tt = \frac{6.25}{\sqrt{\left(\frac{39(\ 94.85) + 39\ (77.73)}{78}\right)(0.025 + 0.025)}}$$

$$Tt = \frac{6.25}{\sqrt{\left(\frac{3699.15 + (3031.47)}{78}\right)(0.05)}}$$

$$Tt = \frac{6.25}{\sqrt{\left(\frac{6730.62}{78}\right)(0.05)}}$$

$$Tt = \frac{6.25}{\sqrt{(86.29)(0.05)}}$$

$$Tt = \frac{6.25}{\sqrt{4.315}}$$

$$Tt = \frac{6.25}{2.077}$$

$$Tt = 3.009$$

Based on calculation above, the result of the homogeneity test of the both averages, it was found that t_{count}= 3.009 with opportunity (1-α) = 1 − 5% = 95% and

dk = n_1 + n_2 -2 = 40 + 40 − 2 = 78, reseracher found that t_{table} = 2.000, cause t_{count} > t_{table} (3.009 > 2.000). It means that H_a was accepted, it means there was the difference average between experimental class and control class in post test. It can be concluded that there was the significant effect of Make a Match technique on students' reading comprehension at XI grade of MAN 1 Padangsidimpuan.

Appendix 24

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 25

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-Table

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 26

Percentage Points of the t Distribution

	Two Tail Test					
	0,50	0,20	0,10	0,05	0,02	0,01
	One Tail Test					
Dk	0,25	0,10	0, 005	0,025	0,01	0,05
1	1,000	3,078	6,314	12,706	31,821	63,657
2	0,816	1,886	2,920	4,303	6,965	9,925
3	0,765	1,638	2,353	3,182	4,541	5,841
4	0,741	1,533	2,132	2,776	3,747	4,604
5	0,721	1,486	2,015	2,571	3,365	4,032
6	0,718	1,440	1,943	2,447	3,143	3,707
7	0,711	1,415	1,895	2,365	2,998	3,499
8	0,706	1,397	1,860	2,306	2,896	3,355
9	0,703	1,383	1,833	2,262	2,821	3,250
10	0,700	1,372	1,812	2,228	2,764	3,165
11	0,697	1,363	1,796	2,201	2,718	3,106
12	0,695	1,356	1,782	2,178	2,681	3.055
13	0,692	1,350	1,771	2,160	2,650	3.012
14	0,691	1,345	1,761	2,145	2,624	2,977
15	0,690	1,341	1,753	2,132	2,623	2,947
16	0,689	1,337	1,746	2,120	2,583	2,921
17	0,688	1,333	1,743	2,110	2,567	2,898
18	0,688	1,330	1,740	2,101	2,552	2,878
19	0,687	1,328	1,729	2,093	2,539	2,861
20	0,687	1,325	1,725	2,086	2,528	2,845
21	0,686	1,323	1,721	2,080	2,518	2,831
22	0,686	1,321	1,717	2,074	2,508	2,819
23	0,685	1,319	1,714	2,069	2,500	2,807
24	0,685	1,318	1,711	2,064	2,492	2,797
25	0,684	1,316	1,708	2,060	2,485	2,787
26	0,684	1,315	1,706	2,056	2,479	2,779
27	0,684	1,314	1,703	2,052	2,473	2,771
28	0,683	1,313	1,701	2,048	2,467	2,763
29	0,683	1,311	1,699	2,045	2,462	2,756
30	0,683	1,310	1,697	2,042	2,457	2,750
40	0,681	1,303	1,684	2,021	2,423	2,704
60	0,679	1,296	1,671	**2,000**	2,390	2,660
120	0,677	1,289	1,658	1,980	2,358	2,617
∞	0,674	1,282	1,645	1,960	2,326	2,576

Appendix 27

DOCUMENTATION

Nomor	: 30/In.14/E.6a/PP.00.9/09/2016	Padangsidimpuan, 7 September 2016
Sifat	: Biasa	
Lampiran	: -	
Hal	: Pengesahan Judul dan Pembimbing skripsi	

Kepada Yth Bapak/Ibu
1. Dr. Fitriadi Lubis, M.Pd   (Pembimbing I)
2. Sojuangon Rambe, S.S., M.Pd   (Pembimbing II)
Di –
    Padangsidimpuan

Assalamu'alaikum Wr.Wb.

Dengan hormat, sehubungan dengan hasil siding bersama tim pengkjian 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	: Annisa NurHabibie A.R Harahap
NIM	: 13 340 0006
Jurusan	: Tadris Bahasa Inggris – 1
Fakultas	: Tarbiyah dan Ilmu Keguruan (FTIK)
Judul Skripsi	: **The Effect of Make a Match Technique on Students' Reading Comprehension at XI Grade of MAN 1 Padangsidimpuan**

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
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

Dr. Fitriadi Lubis, M.Pd   **Sojuangon Rambe, S.S., M.Pd**
NIP. 19620917 199203 1 002   **NIP. 19790815 200604 1 003**

Nomor : B - 1471 /In.14/E.4c/TL.00/08/2017   31 Agustus 2017
Hal   : Izin Penelitian
         Penyelesaian Skripsi.

Yth. Kepala MAN 1 Padangsidimpuan
Kota Padangsidimpuan

Dengan hormat, Dekan Fakultas Tarbiyah dan Ilmu Keguruan Institut Agama Islam Negeri Padangsidimpuan menerangkan bahwa :

Nama   : Annisa Nur Habibie A.R Harahap
NIM   : 13 340 0006
Fakultas/Jurusan   : Tarbiyah dan Ilmu Keguruan/TBI
Alamat   : Jl. Kapten Koima No.70 Padangsidimpuan

adalah benar Mahasiswa IAIN Padangsidimpuan yang sedang menyelesaikan Skripsi dengan Judul **"The Effect of Make a Match Technique on Students' Reading Comprehension at XI Grade of MAN 1 Padangsidimpuan"**. 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.

a.n. Dekan
Wakil Dekan Bidang Akademik
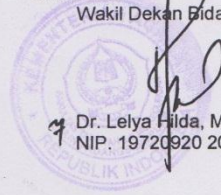
Dr. Lelya Hilda, M.Si.
NIP. 19720920 200003 2 002

KEMENTERIAN AGAMA REPUBLIK INDONESIA
KANTOR KEMENTERIAN AGAMA KOTA PADANGSIDIMPUAN
MADRASAH ALIYAH NEGERI 1
Jalan Sutan Soripada Mulia No. 31 C Sadabuan, Padangsidimpuan 22715
NPSN : 10264757 Telp : 0634 4320719

SURAT KETERANGAN
Nomor : 567/Ma.02.28/PP.00.06/09/2017

Yang bertanda tangan di bawah ini,

Nama	:	Jannes Sihombing, S.Pd
NIP	:	196706082003121001
Pangkat/Gol	:	Pembina, IV/a
Jabatan	:	Kepala Madrasah
Alamat	:	Jalan Sutan Soripada Mulia No. 31 C Padangsidimpuan

dengan ini menerangkan bahwa

Nama	:	Annisa Nur Habibie A.R Harahap
NIM	:	13 340 0006
Program Studi	:	Tarbiyah dan Ilmu Keguruan/TBI
Universitas	:	Institut Agama Islam Negeri (IAIN) Padangsidimpuan

benar telah melaksanakan penelitian di Madrasah Aliyah Negeri 1 Padangsidimpuan pada tanggal 7-12 September 2017 dalam rangka pengumpulan data untuk penulisan skripsi dengan judul : " *The Effect of Make a Match Technique on Students' Reading Comprehension at* XI *Grade* of MAN 1 Padangsidimpuan".

Demikian surat keterangan ini dibuat untuk dipergunakan seperlunya, terima kasih.

Padangsidimpuan, 18 September 2017
Kepala

Jannes Sihombing, S.Pd
NIP. 196706082003121001

Name : RAGIL ANANDA SUGI

Class : XI MIA 3

ANSWER SHEET FOR PRE TEST

1. A B C D	21. A B C D	41. A B C D
2. A B C D	22. A B C D	42. A B C D
3. A B C D	23. A B C D	43. A B C D
4. A B C D	24. A B C D	44. A B C D
5. A B C D	25. A B C D	45. A B C D
6. A B C D	26. A B C D	46. A B C D
7. A B C D	27. A B C D	47. A B C D
8. A B C D	28. A B C D	48. A B C D
9. A B C D	29. A B C D	49. A B C D
10. A B C D	30. A B C D	50. A B C D
11. A B C D	31. A B C D	
12. A B C D	32. A B C D	
13. A B C D	33. A B C D	
14. A B C D	34. A B C D	
15. A B C D	35. A B C D	
16. A B C D	36. A B C D	
17. A B C D	37. A B C D	
18. A B C D	38. A B C D	
19. A B C D	39. A B C D	
20. A B C D	40. A B C D	

B = 42 × 2 = 84
S = 8

Name : FITRAH KHOIRUNNISA
Class : XI MIA 3

ANSWER SHEET FOR PRE TEST

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

21. [A] B C D
22. A [B] C D
23. A B [C] D
24. A B C [D]
25. A [B] C D
26. A B [C] D
27. A B C [D]
28. A [B] C D
29. A B [C] D
30. A [B] C D
31. A [B] C D
32. [A] B C D
33. A [B] C D
34. [A] B C D
35. A B [C] D
36. [A] B C D
37. A [B] C D
38. A B [C] D
39. A B [C] D

41. [A] B [C] D
42. A B C [D]
43. A B [C] D
44. A B [C] D
45. [A] B C D
46. A B C [D]
47. A B [C] D
48. [A] B C D
49. [A] B C D
50. A B [C] D

B = 39 × 2 = 78

S = 11

Name : IRA KARTINI

Class : XI MIA 3

ANSWER SHEET FOR PRE TEST

#	A	B	C	D		#	A	B	C	D		#	A	B	C	D
1			✓			21	✓					41			✓	
2			✓			22				✓		42				✓
3				✓		23		✓				43			✓	
4	✓					24				✓		44			✓	
5			✓			25		✓				45	✓			
6	✓					26				✓		46				✓
7			✓			27				✓		47			✓	
8			✓			28		✓				48	✓			
9			✓			29			✓			49	✓			
10		✓				30		✓				50			✓	
11	✓					31		✓								
12		✓				32	✓									
13			✓			33	✓									
14			✓			34	✓									
15		✓				35		✓								
16				✓		36	✓									
17		✓				37		✓								
18	✓					38			✓							
19		✓				39			✓							

B = 35 × 2 = 70

S = 15

Name : Rafiqah Nurfatwa
Class : XI MIA-4

ANSWER SHEET FOR PRE TEST

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

21. [A] B C D
22. A [B] C D
23. [A] B C D
24. A B C [D]
25. A [B] C D
26. A B [C] D
27. A [B] C D
28. A B [C] D
29. A B [C] D
30. A [B] C D
31. A [B] C D
32. A B C [D]
33. A [B] C D
34. [A] B C D
35. A B C [D]
36. [A] B C D
37. A [B] C D
38. A B [C] D
39. A B [C] D
40. A B [C] D

41. A B C [D]
42. A B C [D]
43. A B [C] D
44. A B [C] D
45. [A] B C D
46. A B [C] D
47. A [B] C D
48. [A] B C D
49. A [B] C D
50. A [B] C D

B = 41 × 2 = 82
S = 9

Name : Sheila Rizka Andini Harahap

Class : XI MIA A.

ANSWER SHEET FOR PRE TEST

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

21. A B C D
22. A B C D
23. A B C D
24. A B C D
25. A B C D
26. A B C D
27. A B C D
28. A B C D
29. A B C D
30. A B C D
31. A B C D
32. A B C D
33. A B C D
34. A B C D
35. A B C D
36. A B C D
37. A B C D
38. A B C D
39. A B C D
40. A B C D

41. A B C D
42. A B C D
43. A B C D
44. A B C D
45. A B C D
46. A B C D
47. A B C D
48. A B C D
49. A B C D
50. A B C D

$B = 33 \times 2 = 66$

$S = 15$

Name : Kaprian Alsyah Kurnia

Class : XI MIA 3

ANSWER SHEET FOR POST TEST

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

21. A B C D
22. A B C D
23. A B C D
24. A B C D
25. A B C D
26. A B C D
27. A B C D
28. A B C D
29. A B C D
30. A B C D
31. A B C D
32. A B C D
33. A B C D
34. A B C D
35. A B C D
36. A B C D
37. A B C D
38. A B C D
39. A B C D
40. A B C D

41. A B C D
42. A B C D
43. A B C D
44. A B C D
45. A B C D
46. A B C D
47. A B C D
48. A B C D
49. A B C D
50. A B C D

B = 45 × 2 = 90

S = 5

Name : Rafiqah Nurfazwa
Class : XI MIA 4

ANSWER SHEET FOR POST TEST

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

21. A B [X] D
22. [X] B C D
23. A B [X] D
24. A [X] C D
25. A [X] C D
26. A [X] C D
27. A [X] C D
28. [X] B C D
29. A B C [X]
30. A B C [X]
31. [X] B C D
32. A B [X] D
33. A [X] C D
34. [X] B C D
35. A B [X] D
36. A [X] C D
37. A [X] B C D
38. A B C [X]
39. A B [X] D
40. A B C [X]

41. A B C [X]
42. A [X] C D
43. [X] B C D
44. [X] B C D
45. A B [X] D
46. A [X] C D
47. A [X] C D
48. A B [X] D
49. A [X] C D
50. A [X] B D

B = 35 × 2 = 80
S = 17