



**THE EFFECT OF KNOW, WANT TO KNOW, LEARNED (KWL)  
STRATEGY ON STUDENTS' READING COMPREHENSION IN  
EXPOSITORY TEXT AT GRADE XI IN SMA N 1 BARUMUN**

**A THESIS**

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

**By:**

**ROBIATUL ADAWIYAH HASIBUAN  
Reg. Numb. 12 340 0067**

**ENGLISH EDUCATION DEPARTMENT**

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



**THE EFFECT OF KNOW, WANT TO KNOW, LEARNED (KWL)  
STRATEGY ON STUDENTS' READING COMPREHENSION IN  
EXPOSITORY TEXT AT GRADE XI IN SMA N 1 BARUMUN**

**A THESIS**

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

**By:**

**ROBIATUL ADAWIYAH HASIBUAN**

**Reg. Numb. 12 340 0067**

**Advisor I**

**Dr. Fitriadi Lubis, M.Pd**  
**NIP. 19620917 199203 1 002**

**Advisor II**

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

**ENGLISH EDUCATION DEPARTMENT**

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

**2018**

**Term** : a thesis  
a.n. Robiatul Adawiyah Hasibuan  
**Item** : 7 (seven) exemplars

Padangsidempuan, 22 Mei 2018  
**To:**  
Dean Tarbiyah and  
Teacher Training Faculty  
**In-**  
Padangsidempuan

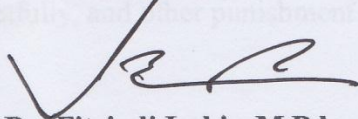
Assalamu'alaikumWr.Wb.

After reading, studying and giving advice for necessary revision on thesis belongs to **Robiatul Adawiyah Hasibuan**, entitled ***"The Effect of Know, Want to know, Learned (KWL) Strategy on Students' Reading Comprehension in Expository Text at Grade XI in SMA N 1 Barumun"***, we approved that the thesis has been acceptable to complete the requirement to fulfill for the degree of Graduate of Education (S.Pd.) in English.

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

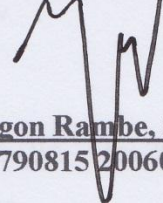
Wassalamu'alaikumWr.Wb.

**Advisor I**



**Dr. Fitriadi Lubis, M.Pd**  
**NIP.19620917 199203 1 002**

**Advisor II**



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

**ROBIATUL ADAWIYAH HASIBUAN**  
Reg Number: 12 340 0067



## DECLARATION OF SELF THESIS COMPLETION

The name who signed here:

Name : **ROBIATUL ADAWIYAH HASIBUAN**  
Registrasi Number : 12 340 0067  
Faculty/ Department : Tarbiyah and Teacher Training Faculty/ TBI-2  
The Title of Thesis : “The Effect of Know, Want to know, Learned (KWL) Strategy on  
Students’ Reading Comprehension in Expository Text at Grade XI  
in SMA N 1 Barumun”

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

I do this declaration truthfully. If there is deceitfulness and incorrectioness regarding to this declaration in the future, I will be willing to get punishment as it is required in students’ Ethic Code of IAIN Padangsidempuan, article 19 verse 4, that is to cancel academic degree disrespectfully, and other punishment regarding norms and legal law.

Padangsidempuan, 22 Mei 2018

Declaration Maker



**ROBIATUL ADAWIYAH HASIBUAN**  
Reg.Number. 12 340 0067

## AGREEMENT PUBLICATION FINAL TASK FOR ACADEMIC CAVITY

---

As academic cavity of the State Institute for Islamic Studies Padangsidempuan, the name who signed here:

Name : ROBIATUL ADAWIYAH HASIBUAN

Registrasi Number : 12 340 0067

Faculty/ Department : Tarbiyah and Teacher Training Faculty/ TBI-2

Kind : Thesis

To develop of science and knowledge, I hereby declare that I present Islamic Studies Padangsidempuan **Non Exclusive Royalty Right** on my thesis with entitle:

**“THE EFFECT OF KNOW, WANT TO KNOW, LEARNED (KWL) STRATEGY ON STUDENTS’ READING COMPREHENSION IN EXPOSITORY TEXT AT GRADE XI IN SMA N 1 BARUMUN”**

With all the sets of equipments (if needed). Based on the this non exclusive royalty right, the State Institute for Islamic Studies Padangsidempuan has the right to save; to format, to organize in data base form, to keep and to publish thesis for as I am determined as a writer and owner of its creative right.

Above all, this statement is made true heartedly to be used properly.

Padangsidempuan, 22 Mei 2018

The signed



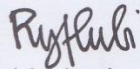
ROBIATUL ADAWIYAH HASIBUAN  
Reg.Number. 12 340 0067



**EXAMINERS**  
**SCHOLAR MUNAQOSYAH EXAMINATION**

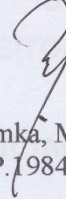
Name : ROBIATUL ADAWIYAH HASIBUAN  
Reg. Number : 12 340 0067  
Faculty/ Department : Tarbiyah and Teacher Training Faculty/ English Education Department  
Thesis : **THE EFFECT OF KNOW, WANT TO KNOW, LEARNED (KWL) STRATEGY ON STUDENTS' READING COMPREHENSION IN EXPOSITORY TEXT AT GRADE XI IN SMA N 1 BARUMUN**

Chief,



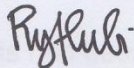
Rayendriani Fahmei Lubis, M.Ag  
NIP. 19710510 200003 2 001

Secretary,

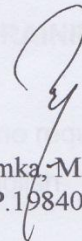


Hamka, M.Hum  
NIP. 19840815 200912 1 005

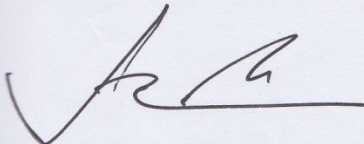
Members,



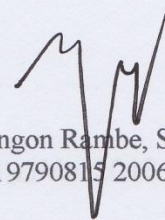
Rayendriani Fahmei Lubis, M.Ag  
NIP. 19710510 200003 2 001



Hamka, M.Hum  
NIP. 19840815 200912 1 005



Dr. Fitriadi Lubis, M.Pd  
NIP. 19620917 199203 1 002



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

Proposed :

Place : Padangsidempuan  
Date : Mei, 22<sup>th</sup> 2018  
Time : 13.30 until Finish  
Result/ Mark : 69 (C)  
IPK : 2.85  
Predicate : Good



**RELIGION MINISTRY REPUBLIC OF INDONESIA**  
**THE STATE INSTITUTE FOR ISLAMIC STUDIES PADANGSIDIMPUAN**  
**TARBIYAH AND TEACHER TRAINING FACULTY**

Alamat: Jl. H.T. Rizal Nurdin Km. 4.5 Telp. (0634) 22080 Sihitang 22733  
Padangsidempuan

**LEGALIZATION**

**Thesis : THE EFFECT OF KNOW, WANT TO KNOW, LEARNED (KWL) STRATEGY ON STUDENTS' READING COMPREHENSION IN EXPOSITORY TEXT AT GRADE XI IN SMA N 1 BARUMUN**

**Written By : ROBIATUL ADAWIYAH HASIBUAN**

**Reg. Number : 12 340 0067**

**Faculty/Department : TARBIYAH AND TEACHER TRAINING FACULTY/TBI-2**

The Thesis had been accepted as a partial fulfillment of the requirement for the graduate degree of Education (S.Pd) in English.



Padangsidempuan, 30 Mei 2018  
Dean of Tarbiyah

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

**Name : Robiatul Adawiyah Hasibuan**  
**Reg. No : 12 340 0067**  
**Faculty : Tarbiyah and Teacher Training**  
**Department : English Education (TBI-2)**  
**Title of Thesis : The Effect of Know, Want to know, Learned (KWL) Strategy on Students' Reading Comprehension in Expository Text at Grade XI in SMA N 1 Barumun**

### **ABSTRACT**

This research focused on the effect of know, want to know, learned (KWL) strategy on students' reading comprehension in expository text at grade XI in SMA N 1 Barumun. The problems of this research were: 1) Most of the students still get low grade with 60 grades meanwhile the standard of English competency in the school 70, 2) Most of students did not understand the text that the students read. They just read the text without comprehending the text. Beside the students' problem, teacher's strategy also became a problem in learning English. The teacher still used the conventional strategy and did not have variation in teaching reading. The purpose of this research was to examine the significant effect of know, want to know, learned (kwl) strategy on students' reading comprehension in expository text at grade XI in SMA N 1 Barumun.

The method was used in this research was experimental research. Two classes were chosen randomly as the sample. They were XI MIA-2 as the experimental class that consisted of 25 students and XI MIA-3 as the control class that consisted of 25 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 know, want to know, learned (kwl) strategy was higher than control class. Mean score of experimental class before using know, want to know, learned (kwl) strategy was 55.64 and mean score of experimental class after using know, want to know, learned (kwl) strategy was 73.84. Besides, the score of  $t_{\text{count}}$  was higher than  $t_{\text{table}}$  ( $4.14 > 2.021$ ). It meant that the hypothesis alternative ( $H_a$ ) was accepted. It was concluded that there was the effect of know, want to know, learned (kwl) strategy on students' reading comprehension in expository text at grade XI in SMA N 1 Barumun.



## **ACKNOWLEDGEMENT**

بسم الله الرحمن الرحيم

Firstly, the researcher would like to convey her grateful to Allah SWT. the most Creator and Merciful who has given her the health, time and chance for finishing the thesis entitled “The Effect of Know, Want to know, Learned (KWL) Strategy on Students’ Reading Comprehension in Expository Text at Grade XI in SMA N 1 Barumun”. Besides, shalawat and salam be upon to the prophet Muhammad SAW that has brought the human from the darkness era into the lightness era.

It is a pleasure to acknowledgement the help and contribution to all lecturers, institution, family and friends who have contributed in different ways. Therefore, in this chance the writer would like to express the deepest gratitude to the following people:

1. Dr. Fitriadi Lubis, M.Pd., as the first advisor and Sojuangon Rambe., S.S., M.Pd as the second advisor that had guided, supported, advised, and suggested the writer with great patience to finish this thesis as well.
2. Rector of IAIN Padangsidempuan. Dr. H. Ibrahim Siregar, M.CL, who has given chance and time. Therefore, the researcher could learn and got some knowledge from IAIN Padangsidempuan.
3. Mrs. Dr. Lelya Hilda, M.Si, as the Dean of Tarbiyah Faculty.
4. Mrs. Rayendriani Fahmei Lubis, M.Ag as the Leader of English Department.
5. IAIN Padangsidempuan Librarian (Mrs. Yusri Fahmi, S.Ag., S.S., M.Hum) for their cooperative and permission to use their books.
6. All lectures and all the academic cavities of IAIN Padangsidempuan who had given so much knowledge and helped during i studied in this beloved instituted.

7. Headmaster, English teacher and students of SMA N 1 Barumun who helped me to complete my research.
8. My beloved parents, (Pangihutan Hasibuan and Masliani Lubis) who has supported emotionally and economically, who have taught the researcher how to be patient and survive. They give big suplay in her life with much love, life knowledge, supports, patience, and pray that guardedthe researcher to be better in all conditions.
9. My lovely friends, Lenni Hidayati, Latifah Hannum, Iska Hotma, Ita Erpina, Nur Aliyah, Juni Aida, Samni Purnama, Sari Agustina, and all of my friends in TBI and also all my friends in IAIN Padangsidimpuan, thanks for your help, patience and care to support me from starting till finishing my thesis as well. Good luck for you.

Finally, The researcher realizes that this thesis cannot be considered perfectly without critiques and suggestions from the readers. Therefore, it is such a pleasure for her to get critiques and suggestions from the readers to make this thesis better.

Padangsidimpuan,  
Writer,

**ROBIATUL ADAWIYAH HASIBUAN**  
**Reg.No. 12 340 0067**

## TABLE OF CONTENTS

	Page
INSIDE TITLE PAGE.....	i
LEGALIZATION ADVISORS SHEET .....	ii
AGREEMENT ADVISORS SHEET .....	iii
DECLARATION OF SELF THESIS COMPLETION.....	iv
AGREEMENT PUBLICATION OF FINAL TASK FOR ACADEMIC CIVILITY .....	v
SCHOLAR MUNAQOSYAH EXAMINATION .....	vi
LEGALIZATION OF DEAN OF TARBIYAH AND TEACHER TRAINING FACULTY .....	vii
ABSTRACT .....	viii
ACKNOWLEDGEMENT .....	ix
TABLE OF CONTENTS .....	xi
LIST OF TABLES .....	xiii
LIST OF FIGURES .....	xiv
LIST OF APPENDIXES .....	xv

### CHAPTER I: INTRODUCTION

A. Background of the Problem .....	1
B. Identification of the Problem .....	5
C. Limitation of the Problem .....	6
D. Formulation of the Problem .....	7
E. Purpose of the Research .....	7
F. Significances of the Research .....	8
G. Outline of Thesis .....	8

### CHAPTER II : LITERATURE REVIEW

A. Theoretical Description	
1. Reading Comprehension in Expository Text .....	10
a. Definitions of Reading Comprehension .....	10
b. The Aims of Reading Comprehension .....	11
c. The Process of Reading Comprehension .....	12
d. The Levels of Comprehension .....	14
e. Reading Assessment .....	16
f. Definition of Expository Text .....	19
1) Social Function of Expository Text .....	21
2) The Generic Structures of Expository Text .....	21



3) Example of Expository Text .....	21
2. Know, Want to know, Learned (KWL) Strategy .....	23
a. Definitions of Know, Want to know, Learned (KWL) Strategy.....	23
b. The Procedure of Know, Want to know, Learned (KWL) Strategy.....	24
c. The Advantages and Disadvantages of Know, Want to know, Learned (KWL) Strategy .....	26
3. Conventional Strategy .....	27
a. Definitions of Conventional Strategy.....	27
b. The procedure of Conventional Strategy .....	28
c. The Advantages and Disadvantages of Conventional Strategy.....	30
B. Review of Related Findings.....	32
C. Conceptual Framework .....	34
D. Hypothesis .....	35

### **CHAPTER III: RESEARCH METHODOLOGY**

A. Place and Time of the Research.....	36
B. Research Design .....	36
C. Population and Sample .....	37
D. Definition of Operational Variable .....	41
E. Instrument of Collecting Data .....	41
F. Validity and Reliability .....	43
G. Procedures of the Research .....	45
H. Technique of Data Analysis .....	47

### **CHAPTER IV RESEARCH RESULT**

A. Description of Data .....	50
B. Data Analysis .....	65
C. Discussion .....	68
D. Limitation of the Research .....	72

### **CHAPTER V THE CONCLUSION AND SUGGESTION**

A. Conclusion .....	73
B. Suggestion .....	74

### **REFERENCES**

### **CURRICULUM VITAE**

### **APPENDIXES**

## LIST OF TABLES

Table	Page
Table 1 ResearchDesign .....	37
Table 2 The Population of the Grade XI MIA Students in SMA N 1 Barumun .....	38
Table 3 Sample of the Research .....	41
Table 4 Indicators of Reading Comprehensionfor Pre-test .....	42
Table 5 Indicators of Reading Comprehensionfor Post-test .....	43
Table 6 The Score of Experimental Class in Pre-test .....	50
Table 7 Frequency Distribution ofExperimental Class (Pre-test) .....	51
Table 8 The Score of Control Class in Pre-test .....	52
Table 9 Frequency Distribution of Control Class (Pre-test) .....	53
Table 10 The Score of Experimental Class in Post Test .....	54
Table 11 Frequency Distribution of Experimental Class (Post-test) .....	55
Table 12 The Score of Control Class in Post-test .....	56
Table 13 Frequency Distribution of Control Class (Post-test) .....	57
Table 14 The Comparison Score of Students' Reading Comprehension in Pre-test and Post-test (Experimental Class) .....	58
Table 15 The Comparison Score of Students' Reading Comprehension in Pre-test and Post-test (Control Class) .....	60
Table 16 The Comparison Score of Students' Reading Compehension in Experimental and Control Class (Post-test) .....	63
Table 17 Normality and Homogeneity in Pre-Test .....	65
Table 18 Normality and Homogeneity in Post-Test .....	66
Table 19 Result of T-test from the Both Averages .....	67

## LIST OF FIGURES

Figure	Page
Figure 1 :The Result Score of Students' Reading Comprehension in Experimental Class (Pre Test) .....	51
Figure 2 :The Result Score of Students' Reading Comprehension in Control Class (Pre Test) .....	53
Figure 3 :The Result Score of Students' Reading Comprehension in Experimental Class (Post Test) .....	55
Figure 4 : The Result Score of Students' Reading Comprehension in Control Class (Post Test) .....	57
Figure 5 : The Comparison Data of Students' Reading Comprehension in Pre Test and Post Test (Experimental Class) .....	59
Figure 6 : The Comparison Data of Students' Reading Comprehension in Pre Test and Post Test (Control Class) .....	61
Figure 7 : The Comparison of Description Data between Students' Reading Comprehension in Experimental and Control Class (Post Test) .....	64



## **LIST OF APPENDIXES**

- Appendix 1 : Lesson Plan of Experimental Class
- Appendix 2 : Lesson Plan of Control Class
- Appendix 3 : Instrument for Pre-Test
- Appendix 4 : Instrument for Post-Test
- Appendix 5 : Answer Key of Pre-Test and Post-test
- Appendix 6 : Validity of Pre-Test
- Appendix 7 : Calculation of Pre-Test Validity
- Appendix 8 : Table of Pre Test Validity
- Appendix 9 : Validity of Post Test
- Appendix 10: Calculation of Post Test Validity
- Appendix 11: Table of Post Test Validity
- Appendix 12: Reliability of Pre Test
- Appendix 13: Calculation of Reliability Pre-Test
- Appendix 14: Reliability of Post Test
- Appendix 15: Calculation of Reliability Post-Test
- Appendix 16: Score of Experimental Class and Control Class in Pre Test
- Appendix 17: Result of Normality Test in Pre Test
- Appendix 18: Homogeneity Pre Test
- Appendix 19: Score of Experimental Class and Control Class in Post Test
- Appendix 20: Result of Normality Test in Post Test
- Appendix 21: Homogeneity Post Test
- Appendix 22: T-test of the Both Averages in Pre Test

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

Appendix 24: Chi-Square Table

Appendix 25: Z-Table

Appendix 26: Percentage Points of the t Distribution

Appendix 27: Documentation

## **CHAPTER I**

### **INTRODUCTION**

#### **A. Background of the Problem**

Reading comprehension is an ability to understand what the readers read where words have context and text have meaning. If someone can read the words of a text, but 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 the basic for students to master English. It can be seen from English syllabus that reading comprehension groups in almost every unit 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. Then, reading comprehension is the basic for all subject in English lesson.

It is clearly stated in the curriculum that the object of teaching English is improving students in the four skills of language namely: listening, speaking, reading and writing. In teaching process, especially in teaching reading the students must be able to read and to understand the content of reading. Because, it is item obligatory base on their curriculum was the students were able to read and understand reading text.

Rahayu says, “reading comprehension include understand simple defenition, understood simple significance, evaluated the content of reading and speed reading flexible. To achieve this skill reading needed silent reading



activity”.<sup>1</sup> Therefore, it can be concluded that reading comprehension is complex process of a reading activity which the aim to get information from the reading text.

Reading comprehension is very essential because reading comprehension help students get information from the text, when students wants to know about something in the book, the students must first read a book. Next, reading comprehension help students to get much knowledge from their read. So, reading comprehension is very important for students, if students can not read, students can not get information. Then, if students can read, students get much knowledge and information from what the read.

The efforts of in increase reading comprehension mastery are teachers take material from other sources such as; from internet, take material about breaking news, famous news, and famous story. So, students will interested to read and comprehend the material or text. Then, teachers make lesson plan. Because lesson plan is guided for teacher when teacher teach.

In fact, the condition of students' reading comprehension mastery in SMA N 1 Barumun is still poor. Based on the interview with an English teacher SMA N 1 Barumun ” The students' reading comprehension mastery can not be established and the students did not understand the text that the students read. They just read the text without comprehend the text. Then, reveals the average of students reading

---

<sup>1</sup>Minto Rahayu, *Bahasa Indonesia di Perguruan Tinggi* (Jakarta: Grasindo, 2007), p. 112-113.

achievement of eleventh grade is 60. Whereas, standard of minimum completeness of mastery learning for senior high school in SMA N 1 Barumun is 70..”<sup>2</sup>. 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’ were lack vocabularies, their less practice, interesting and motivation, their bad mindset about English, their less strategy to learn reading comprehension and teacher’s less strategy in teaching.<sup>3</sup> The researcher thinks that it is a big problem.

There are some factors in students reading comprehension, such as problem solving, homework, recitation, demonstration and strategy. A strategy is one of the important components in teaching and learning process. The strategy is important because it can make a learning process easier. Generally, strategy is a way done by someone to reach a goal. So, the teachers can use some strategies in teaching reading to reach a reading goal. The teachers can use the different strategies in teaching reading comprehension to give variety in learning process. This way will make students easier in reading activity.

The strategies give big supply in teaching reading comprehension. By applying various strategy in teaching reading comprehension, the good result is not only in students’ attention, but also in teaching and learning process. Teacher’s

---

<sup>2</sup> Interview with Mrs Anggun Sasmita Siagian, English teacher at grade XI in SMA N 1 Barumun, (Barumun: SMA N 1 Barumun), Saturday, 22 October 2016.

<sup>3</sup> *Ibid.*

good class management and the application of suitable strategy will give good effect in classroom atmosphere. The application of strategy will make students pay attention to the lesson. The various strategies 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 strategies is the important role in teaching reading comprehension.

There are many strategies that can be applied in teaching reading comprehension. Some of the popular strategies are Jigsaw strategy, Silent reading, Semantic mapping, Skimming, Scanning, Know, Want to know, Learned (KWL) strategy and other. Those various strategy are suitable and good for enjoyable teaching learning process in reading comprehension classes.

One of the strategies to teach reading comprehension is Know, Want to know, Learned (KWL) strategy. This reading comprehension teaching strategy uses know, want to know, learned (kwl). Know, Want to know, Learned (KWL) strategy is that used to activate students' prior knowledge, to identify what students want to learn, confirm what they have learned, and categorize their information to create a summary of what they learned.

Know, Want to know, Learned (KWL) strategy is one of simples cooperative learning strategy. This strategy is adaptable to most all subject and grade level.<sup>4</sup> This strategy can help students in reading comprehension because this strategy can motivate students to encourage, help each other master skill

---

<sup>4</sup>Anita Lie, *Cooperative Learning*, (Jakarta: PT. Grasindo, 2008), p. 55.

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.<sup>5</sup>

Based on the explanation above, the researcher is interested to introduce Know, Want to know, Learned (KWL) strategy to teach reading comprehension in the school. The researcher wants to know whether Know, Want to know, Learned (KWL) strategy give significant effect on students' reading comprehension or not. So, this strategy 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 Know, Want to know, Learned (KWL) Strategy on Students' Reading Comprehension in Expository Text at Grade XI in SMAN 1 Barumun"*.

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

Reading comprehension is highest process from reading activity. According to Brown, "reading comprehension is primarily matter of developing appropriate, efficient comprehension strategies".<sup>6</sup> Further, Otto said "Reading comprehension was interaction between thought and language and based evaluation of success in comprehension on the extent to which the reader's reconstructed messages agrees with the writers and emphasis words."<sup>7</sup>

---

<sup>5</sup>Istarani, *58 Model Pembelajaran Inovatif*, (Medan: Media Persada, 2014), p.65.

<sup>6</sup>H. Douglas Brown, *Teaching by Principlesan Interactive Approach to Language Paedagog* (New Jersey: Prentice Hall, Inc Englewoods Cliffs, 1994), p. 291.

<sup>7</sup>Wayne Otto, *How to Teach Reading* (America: Addison Wesley Publishing, 1979), p. 161

There are some factors that give effect on reading comprehension, such as media, students' interesting, material and strategy. Strategy is everything that teachers do or should do in order to help their learners learn. As Linda and Mary say, "Research seems to indicate that many efficient strategies for learning reading comprehension are available for use."<sup>8</sup>It means that strategy is one of the factors that affect reading comprehension. The strategy means here is Know, Want to know, Learned (KWL) strategy.

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

There are many kinds of strategies to teach reading comprehension those are skimming, scanning, and Know, Want to know, Learned (KWL) strategy.

The researcher did not discuss all kinds of the strategies. The researcher just choice one kind, that is know, want to know, learned (kwl) strategy.

According to the researcher the know, want to know, learned (kwl) strategy is the better strategy to improve students' reading comprehension because it is easier for students to comprehend the text.

---

<sup>8</sup>Mary M. Dupuis and Linda H. Merchant, *Reading Across the Curriculum: A Research Report for Teachers*,( Bloomington, Indiana: Edinfo Press, 1993) p.17



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

The formulation of the problem in this research are:

1. How is the students' reading comprehension in expository text before using Know, Want to know, Learned (KWL) strategy at grade XI in SMA N 1 Barumun?
2. How is the students' reading comprehension in expository text after using Know, Want to know, Learned (KWL) strategy at grade XI in SMA N 1 Barumun?
3. Is there the significant effect of Know, Want to know, Learned (KWL) strategy on students' reading comprehension in expository text at Grade XI in SMA N 1 Barumun?

#### **E. 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 Know, Want to know, Learned (KWL) strategy on students' reading comprehension in expository text at grade XI in SMA N 1 Barumun.
2. To examine the reading comprehension after using Know, Want to know, Learned (KWL) strategy on students' reading comprehension in expository text at grade XI in SMA N 1 Barumun..

3. To examine whether there is or there is not the significant effect of using Know, Want to know, Learned (KWL) strategy on students' reading comprehension in expository text at grade XI in SMA N 1 Barumun..

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

Significances of the research were the large contributions depending on where and whoever a result of the research being useful in terms of education.

The significances of the research were:

1. Headmaster of SMA N 1 Barumun, to develop and encourage English teachers to teach English best.
2. English teachers of SMA N 1 Barumun, especially for the English teacher of grade XI; to add their references in teaching and learning reading comprehension.
3. Other researchers, to add their information to do a further research.

#### **G. Outline of the Thesis**

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

Chapter one discuss about introduction, consist of background of the problem, identification of the problem, limitation of the research, formulation of the problems, purpose of the research, definition operational variables, and significances of the research.

Chapter two is the theoretical description, which explain about KWL (know, want to know, learned) strategy, reading comprehension, related findings, conceptual framework and hypothesis.

Chapter three discuss about the methodology of research consists of: place and schedule of the research, research design, population and sample, the instrument of collecting data, technique of collecting data and technique of analyzing data.

Chapter four is the result of the research and data analyzing consists of description of data, discussion of the research and limitation of the research.

Chapter five is the conclusion and suggestion.

## CHAPTER II

### LITERATURE REVIEW

#### A. Theoretical Descriptions

##### 1. Reading Comprehension

###### a. Definitions 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.<sup>1</sup>As Hornby says, “comprehension is the power of understanding”<sup>2</sup>. It is the ability to understand a language. According to Richard says that comprehension is the process by which a person understanding the meaning of written or spoken language clearly.<sup>3</sup> Besides that, Roehl says that reading comprehension is an ability to understand what the readers read where words have context and texts have meaning.<sup>4</sup> In addition, David Nunan says that reading comprehension is the instruction program, more emphasis and time may

---

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

<sup>2</sup> A.S. Hornby, *Oxford Advanced Learner's Dictionary*, (New York: Oxford University Press, 1995), p. 324.

<sup>3</sup> Richard A. Renandya, *Language Teaching Methodology*, (Cambridge: Cambridge University, 2000), p.54.

<sup>4</sup> K.M. Roehl, *Developing Reading Comprehension Skill in EFL University Level Student*, (Taiwan: St. Jhon's University, 2003), p. 177.

be placed on testing reading comprehension than on teaching reader how to comprehend.<sup>5</sup>

From those definitions, it can be concluded that reading comprehension is mental process in which the readers try 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 aims.

William Grabe says 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 comprehension (in many cases, reading for interest or reading to entertain)<sup>6</sup>

Besides that, Henry Guntur Tarigan says 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

---

<sup>5</sup> David Nunan, *Design Task For the Communicative Classroom*, (United Kingdom: Cambridge University Press, 1988), p. 69.

<sup>6</sup> William Grabe, *Reading in a Second Language*, (Cambridge:Cambridge University Press), p. 8.

- 6) Reading is to evaluate
- 7) Reading is to compare or contrast<sup>7</sup>

Based on the quotations above, the aims of reading comprehension divided into seven importance, they are reading to search for information (scanning and skimming), reading is for main 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 SMA, the aims of reading comprehension are to identify important or specific information from the text, main ideas of a text, reference to a word and word contextual meaning.<sup>8</sup> 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 Processes 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

---

<sup>7</sup> Henry Guntur Tarigan, *Membaca Sebagai Keterampilan Berbahasa*, (Bandung: Aksara, 1990), p. 9-10.

<sup>8</sup> Syllabus of English, (Barumun: SMA N 1 Barumun, 2016/ 2017 Academic Year).



comprehension. The process of reading comprehension can be divided into three categories, they are:

1) Bottom-up models

Typically consist of lower-level reading processes. Students start with the fundamental basics of letter and sound recognition, which in turn allows for morpheme recognition followed by word recognition, building up the identification of grammatical structures, sentences, and longer texts. Letter, letters clusters, words, phrases, sentences, longer text, and finally meaning is the order in achieving comprehension. Within a bottom-up approach to reading, the most typical classroom focus is on what we call intensive reading.

2) Top-down models

The reader uses background knowledge, makes predictions, and searches the text to confirm or reject the predictions that are made. A passage can thus be understood even if all the individual words are not understood. Within a top-down approach to reading the teacher should focus on meaning generating activities rather than on mastery of word recognition. Extensive reading plays a key role in top-down approaches to reading.

3) Interactive models

This third type combines elements of both bottom-up and top-down models assuming that a pattern is synthesized based on information provided simultaneously from several knowledge sources.

Teacher need to provide learners with shorter passages to teach specific reading skills and strategies explicitly. Teacher also need encourage learners to read longer texts without an emphasis on testing their skill.<sup>9</sup>

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

---

<sup>9</sup> David Nunan, *Practical English Language Teaching* , Op.Cit., p. 70-73.

1) Bottomup models

The models traditionally depict reading as a mechanical process in which the reader decodes the on going text letter by letter, word by word, sentence by sentence.

2) Topdown models

The models assume that the reader actively controls the comprehension process, directed by reader goals, expectations, and strategic processing. These models characterize the reader as someone who has a set of expectations about the information in the text and who samples enough information to confirm these expectations.

3) Interactive Models

The models are the typical compromise solution. The basic assumption is that useful elements from bottomup and topdown views can be combined in some massively interactive set of processes.<sup>10</sup>

The quotations above show that reading comprehension is a process to understand of written text or printed material. So, it can be concluded that there are three categorized as the process of reading comprehension, they are Bottom-up models, Top-down models, and Interactive models. Which is the process of reading use some factors, such as; intelligence, skill in language, background knowledge, and others.

#### **d. 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

---

<sup>10</sup> William Grabe, *Op.Cit.*, p. 89.

comprehend it easily or may be quickly. Otto suggested that the level of reading comprehension may be divided into four categories, they are:

1) Literal Comprehension

Literal comprehension is getting the information from the reading material. The information has explicitly stated. It also can be said as comprehending the text through understanding word to word from the reading material.

2) Interpretation

Interpretation means trying to get information from the reading material both explicit and implicit. In this process the reader tries to interpret the information by assimilation and accommodation. Assimilation means the information that is gotten from the reading material while accommodation means the information that is gotten through making perception to the reader's knowledge.

3) Critical Reading

Critical reading is evaluating what has been read by the reader. Evaluating means making revisions to the information that has been gotten from reading material.

4) Creative Reading

Creative reading is applying ideas read to new situations. It means that the information which is gotten from the reading material will be applied in new contexts. This applying of course is through making manipulation of knowledge to the new context or situation.<sup>11</sup>

Besides that, Westwood says that the levels of comprehension are as follows:

1) Literal level

At the literal level the basic facts are understood.

2) Inferential level

At the inferential level the reader is able to go beyond what is written on the page and add meaning or draw conclusions.

---

<sup>11</sup> Wayne Otto, *How to Teach Reading*, (USA: Wesley Publishing Company, 1979), p. 163.

3) Critical level

At the critical level the reader assesses the good sense of what he or she is reading, its clarity, accuracy, and any apparent exaggeration or bias.

4) Creative level

At the creative level the reader can take information or ideas from what has been read and develop new ideas from them.<sup>12</sup>

The quotations above show that reading comprehension is divided into four categories, they are: Literal level for getting the direct meaning that has been explicitly stated, Interpretation/Inferential level for identifying ideas not explicitly 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 responses required by the reader. It can be as what the reader do in reading a text. The reader infers, interprets, criticizes and be creative in reading the written form or printed material. Building these skills is an important part of early education and will help students in their understanding of harder texts.

#### **e. Assessment of Reading Comprehension**

Assessment is a tool to measure how far the students' ability and comprehension of the material.<sup>13</sup> According to Wadsworth, there are five types of assessment of reading comprehension. They are:

---

<sup>12</sup> Peter Westwood, *Reading and Learning Difficulties: Approach to Teaching and Assessment*, (Australia: National Library of Australia, 2001), p. 21-22.

- 1) Literal comprehension, entails understanding the information that is explicit in the reading material.
- 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.<sup>14</sup>

Besides that, Nuttal 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.<sup>15</sup>

Based on the quotations above, 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

---

<sup>13</sup> J. Michael O, Malley and Lorraine Valdez Pierce, *Autentic Assessment for English Language Learners*, (America: Addison-Wesley Publishing Company, 1996), p. 98.

<sup>14</sup> Wadsworth, *Assessment: In Special and Inclusive Education, Eleventh Edition*, ( USA: Cengage Learning Press, 2010), p. 196.

<sup>15</sup> C. Nuttal, *Teaching Reading Skills in a Foreign Language*, (London: Heinemann Educational Books, 1982), p. 234.

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 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.<sup>16</sup> 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 strategies 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.

---

<sup>16</sup> O.S. Djuharie, *Intensive Reading Bottom-Up Reading*. (Bandung: Yrama Widya, 2008), p. 112.



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 already been reached as to the correct answer to each item.<sup>17</sup>

So, 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.

#### **f. Definition of Expository Text**

Expository text is giving directions or explaining a process, and according to Sanggam Siahaan and Kisno Shinoda stated than expository text is a written English text in which the writer persuades people that something should or should not be the case.<sup>18</sup> Then, Otong Setiawan Djuharie stated that expository text is to tell author's idea or argument about a phenomena or case or problem.<sup>19</sup> This is a unique text, a writer

---

<sup>17</sup> Cyril J. Weir, *Communicative Language Testing*, (New York: Prentice Hall, 1990), p. 43.

<sup>18</sup> Sanggam Siahaan and Kisno Shinoda, *Generic Text Structure* (Yogyakarta: Graha Ilmu, 2008), P.101.

<sup>19</sup> Otong Setiawan Djuharie, *Genre Dilengkapi 700 soal Uji Pemahaman* (Bandung: CV. Yrama Widya, 2007), P.31.

have to arrange some ideas in which a reader will be persuaded by there or more argument and hope the reader will be persuaded.

Djoehana D. Oka et al stated that exposition text is the straight forward explanation of something. For example a process, an object, an idea, or an event. It is simply an exposing of information. It analyses or accounts for something by presenting specific information support explanation given.<sup>20</sup> This definition seems like another kind of text like explanation and argumentation, but there some big different that is the primary function of expository text is not tell stories, histories, or relate a happening although exposition often use narration as one of explanation technique. Its primary function is not to create clear picture for the reader. But the main purpose of exposition is to present/to explain an idea, or an event. Any kind of a text that has as its primary purpose to make subject clear by presenting specific information will be considered as an exposition text.

So, the researcher concludes that the text is a meaningful linguistics unit which included not only symbols such as paragraphing and format and together become a unity in a context.

---

<sup>20</sup> Djoehana. D. Oka et al, *Advanced Reading* (Jakarta: Universitas Terbuka, 2004), P.4.3.

### 1) Social Function of Expository Text

Social function of expository text is to persuade the reader or listener that something is in the case.

### 2) The Generic Structures of Expository Text

There are some generic structures of expository text, they are:

- a. Thesis: introduces topic and indicates writer's position.
- b. Arguments: support the thesis by presenting a series of arguments.
- c. Reiteration: restates the writer's point of view.<sup>21</sup>

### 3) Example of Expository Text

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) Expository Text
- 6) Discussion Text
- 7) Explanation Text<sup>22</sup>

---

<sup>21</sup> *Ibid*, p.37

<sup>22</sup> Otong Setiawan Djuharie, *Genre, Dilengkapi 700 Soal Uji Pemahaman*, (Bandung: CV. Yrama Widya, 2007), p. 26.

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 used in SMA N 1 Barumun is *Pathway to English for Senior High School and MA Grade XI General Programme*. This book consist of many reading comprehension buildings, such as genre text, they are Report text, Narrative, and Expository text.<sup>23</sup> So, in this research the researcher uses one kinds of genre text and the one kinds that appropriate with material of students' English book in first semester at grade XI of SMA N 1 Barumun. They are Expository text:

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

Smoking in a restaurant does not only give the bad impact to the active smokers but also the passive ones.

Smoking in a restaurant is impolite. The smell of the smoke affects all people and can turn them off their food. People pay to taste good food and not to be put off by foul-smelling smoke.

Besides, smoking harm the others especially passive smokers, that is, breathing in smoke made by a smoker, can lead to asthma attacks and even cancer.

Finally, smoking is dangerous and a health risk to the smoker. Cigarettes cause heart and lung disease and people do not smoke anywhere, not just in restaurants.

Regarding to the bad impacts, smoking must not be allowed in any restaurants.

1. The text tells about ....
  - a. Smoking in restaurant
  - b. Restaurant
  - c. Cigarettes
  - d. Health risk

---

<sup>23</sup>Th. M. Sudarwati and Eudia Grace, *Pathway to English for Senior High School and MA Grade XI General Programme*, (Jakarta: Erlangga, 2014), p. 5, 35, 50, 103.

- e. Cause heart
- 2. The statements below are true based on the text, except...
  - a. Smoking is dangerous
  - b. Smoking makes us better
  - c. Smoking is unhealthy for the smoker
  - d. Smoking must not be allowed
  - e. Smoking harms to the others
- 3. What is the main idea of the second paragraph ?
  - a. Smoking in a restaurant is impolite
  - b. Passive smoking is made by a smoker
  - c. Cigarettes cause heart and lung disease
  - d. Smoking in restaurants must not be allowed
  - e. The smell of the smoke affects all people<sup>24</sup>

## 2. Know, Want to know, Learned (KWL) Strategy

### a. Definition of Know, Want to know, Learned (KWL) Strategy

KWL is a framework that is used to connect a student's prior knowledge to what they are actively learning. The student begins by thinking about what they already know about the topic of study.<sup>25</sup> Then, they think about what they want to know, and finally, they actively learn something new about the topic. Students can do activity independently, with minimal guidance from the teacher, or it can be teacher directed activity. Then, K-W-L is the creation of Donna Ogle and is a 3-column chart that helps capture the before, during, and after components of reading a text selection. Here is the further explanation:

---

<sup>24</sup> Th. M. Sudarwati and Eudia Grace, *Look Ahead: An English Course 2*, (Jakarta: Erlangga, 2006), p. 20.

<sup>25</sup> Virginia, *Reading Strategies for Content Area Teachers* (Department of Educational 2004), p.3.

- 1) **K** stands for **Know**. This is the prior knowledge activation question. Know is understanding or be aware of something. What you want know about something have information about something know of something have information.
- 2) **W** stands for **Will** or **Want to know**; What I think I will learn about this topic? What **I** want to know about this topic? Want is something wanted or needed. Have a desire or wish for something.
- 3) **L** stands for **Learned**; What have I learned about this topic? Learn is gain knowledge or skill in subject or activity. Become aware of something by hearing about it from somebody else.<sup>26</sup>

It means that K is Know the prior knowledge, W is Will or Want learn about the topic that is read, and L is Learned about the topic that has been known.

From the explanation above, KWL strategy work an instructional reading strategy. Reading strategy it can helps new teacher engage students from the beginning of a reading lesson by activating a prior knowledge.

#### **b. The Procedure of KWL Strategy**

Strategy is a way of teaching a language which is based on systematic principle and procedure.<sup>27</sup> Many teacher used technique when they teach. One of them is Know, Want to know, Learned (KWL) strategy. Know, Want to know, Learned (KWL) is strategy of teaching and learning strategy to find partner while learning a topic or material. When a teacher

---

<sup>26</sup> Victoria Bull, *Oxford Dictionary*, (New York: University Press 2008), p. 244, 250, 498.

<sup>27</sup> H. Douglas Brown, *Teaching by Principle: An Interactive Approach to Language Pedagogy*, ( USA: Prentice Hall Inc, 1994), p.126.



want to apply Know, Want to know, Learned (KWL) strategy, they should use systematic procedure that suitable with the strategy.

There are some procedures of KWL strategy, they are:

- 1) Chose a subject of study.
- 2) Create a table with three columns and two rows- one row for the heading and one larger one in which to write. Label the first column with a K for “what I know” the second with a W for “what I want to know” and the third with an L for “what I learned”.
- 3) Brainstorm ideas that the students think they know about the topic. Write those ideas under the K column.
- 4) Next study the topic, the students can read a chapter conduct research, or participate in any other active learning strategy. The students then discuss and write down what they learned in the L column.<sup>28</sup>

Base on the explanation above researcher conclude KWL strategy activates students prior knowledge of the text or topic to be studied. By asking students what they already know, students are thinking about prior experiences or knowledge about the topic. And also using KWL strategy allows students to expand their ideas beyond the text used in the classroom. By being aware of students interests, the teacher has the ability to create project and assignments that the students will enjoy. And then KWL strategy is tool that can be use to drive instruction as well as guide student learning.

---

<sup>28</sup> D. M. Ogle, “A Teaching model that develops active reading of expository text”, (1986), p. 564-570

### c. The Advantages and Disadvantages of KWL Strategy

The strategy, technique, methode, approach have advantages and disadvantages. Same with another, mind mapping also have advantages and disadvantages:

The advantages of KWL strategy as follows:

- 1) It is appropriate for all education levels from beginners up to advanced.
- 2) It can be used for all skills but is most suitable for reading skills.
- 3) It helps students to monitor their comprehension and knowledge.
- 4) It encourages students to do critical thinking.
- 5) It makes teacher and students become more interactive in the teaching and learning process.
- 6) It sets out a purpose for reading. This means that readers have some ideas about the text before reading the whole text and focus to find the important points whilst reading.

The disadvantages of KWL strategy as follows:

- 1) It is difficult for students with no prior knowledge.
- 2) It takes time to complete.
- 3) It is not effective for reading fiction materials.
- 4) It is not appropriate for readers who are not active thinkers.
- 5) Students will give up and get bored easily.<sup>29</sup>

So, related to the advantages and disadvantages above, there are some advantages when a teacher uses KWL strategy in their teaching activities. It gives teacher the strong reason to use this

---

<sup>29</sup> Ibrahim N. N, The use of KWL technique in teaching reading descriptive text: A quasi-experimental study in the first grade of a senior high school in Bandung. Available at [http://a-research.upi.edu/operator/upload/sing\\_0608702\\_chapter3.pdf](http://a-research.upi.edu/operator/upload/sing_0608702_chapter3.pdf) (Retrieved on November1, 6, 2012. 08:30 p.m).

strategy to teach reading comprehension. So, KWL is a strategy that computable to be used in English classroom.

### 3. Conventional Strategy

#### a. Definition of Conventional Strategy

Conventional strategy is needed to compare it with treatment. Here is Know, Want to know, Learned (KWL) strategy. Conventional strategy is the strategy or the way that usually used by the teachers to teach the text to students.<sup>30</sup> According to Hudson that “conventional teaching is a strategy that used by the teachers based mutual agreement in a school.”<sup>31</sup>

From those definitions above, it can be concluded that the Coventional teaching strategy 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 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 strategy is the strategy used by teacher in common ways or lecture strategy.

---

<sup>30</sup> Jhon Deriden, *Conventional Technique*, ([http:// www.britania.com/ Ebchecked/ topic/ 421797/nnucler-strategy/52993/conventional-strategy](http://www.britania.com/Ebchecked/topic/421797/nnucler-strategy/52993/conventional-strategy)), retrieved on December 24<sup>th</sup>, 2016 at 10.00 p.m.

<sup>31</sup> Hudson, *The Meaning of Conventional Teaching (Online)*, (<http://www.conventional-strategy/topic/54372-strategy>), retrieved on October, 02<sup>nd</sup> 2016).

## **b. The Procedure of Conventional Strategy**

There are many strategy that we can used in teaching and learning process. One of them is conventional or traditional strategy. Conventional strategy can be divided into some strategy, such as: lecture strategy, problem solving, homework, recitation, demonstration, and so on.<sup>32</sup>

From those strategy, there is a strategy that is often used by the teacher, such as lecture strategy or teacher-centered. It is a traditional strategy because it has been used for a long time in teaching and learning process. In this strategy, the teacher usually gives all of the explanation of the materials or it is a teacher centered. This traditional strategy 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) strategy, they are:

- 1) Preparation Phase
  - a. To formulate the objectives to be achieved
  - b. Determine the main points of the material will be explain.
  - c. Preparing tools.
- 2) Implementing Phase
  - a. Steps Opening
    - i) Make sure that students understand the objectives to be achieved.
    - ii) Do apersepsi step, that is step thinking the subject matter and the material that will be delivered.
  - b. Step Presentation
    - i) Maintain continuous eye contact with students.

---

<sup>32</sup> Syaiful Bahri Djamarah, *Strategy Belajar-Mengajar*, (Jakarta: PT. Asdi Mahasatya, 2006), p. 83.

- ii) The use of communicative language and easily digestible students.
- iii) Present learning materials in systematic, no bounding to be easily captured by the students.
- iv) Respond to immediate students responses.
- v) Keep the class conducive and exciting to learn.
- 3) Ending or Closing Phase
  - a. Guide students to draw conclusion or summarize the subject matter.
  - b. Stimulate students to be able to respond or provide some review sessions of learning material that have been submitted.
  - c. Conduct an evaluation to determine the students ability to master the learning material that had just delivered.<sup>33</sup>

In another source, said that there are three steps that procedure of

Conventional (Lecture) strategy 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 responses.
  - d. Keep the class conducive and exciting to learn.
- 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 leared.<sup>34</sup>

Based on the explanations above, there are three steps procedure of Conventional (Lecture) strategy, they are: Preparation/

---

<sup>33</sup> Andrean Prime, *Step Implementing Teaching Method*, available at <http://materiinside/2014/12/langkah-zmelaksanakan-metode-ceramah-html>., retrieved on February, 25<sup>th</sup> 2017 at 10.00).

<sup>34</sup> Umar Farooq, *The Procedures of Teaching Lecture Technique*, available at <http://www.studylecturenotes.com/social-education/382-lecture-method-of-teaching-definiton-steps-html>., retrieved on April, 27<sup>th</sup> 2017 at 09.05).

Opening phase, Implementing Phase, and Ending or Closing 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. 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.

**c. Advantages and Disadvantages of Conventional Strategy**

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) strategy as follows:

- 1) In short time, teacher is able to convey the material as many as possible.
- 2) The organization of class more simple.
- 3) Teacher can handle overall of the class.
- 4) Teacher easy in prepare the material and convey it to the student.

The disadvantages of Conventional (Lecture) strategy as follows:

- 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.<sup>35</sup>

In addition, Thihanh Pham says that the advantages of

Conventional or Lecture strategy 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.
- 5) No objection is raised by the teacher in connection with the availability of sources and resources.

The disadvantages of Conventional or Lecture strategy are:

- 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 standard 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.<sup>36</sup>

Based on the quotations above, the Conventional (Lecture) strategy are many advantages and disadvantages in teaching learning process. It can be concluded that the students will not always be successful in learning English just by listening to the explanation from the teacher or by reading many

---

<sup>35</sup> Syaiful Bahri Djamarah, *Op.Cit.*, p. 97-98.

<sup>36</sup> Thihanh Pham, *Learners' and Teachers' Preference for Classroom Activities*, (Essex University: Essex University Press, 2005), p. 136-137.

books. Therefore, in this research the researcher choose KWL strategy as teaching strategy in teaching reading comprehension at the eleventh grade of SMA N 1 Barumon.

## **B. Review of Related Findings**

There are some related findings related to this research. The first is Lonni Nur Iffah Nasution “The Effect of Cooperative Integrated Reading and Composition (CIRC) Strategy on Students’ Reading Comprehension at Grade of MAN 1 Padangsidempuan”. The concluding of her research, there is the effect of cooperative integrated reading and composition (circ) strategy on students’ reading comprehension, where the mean score is 80.95 and control class is 75.85 with  $t_0$  is higher than  $t_t$  ( $6.98 > 2.021$ ). So, the implication of cooperative integrated reading and composition (circ) strategy on students’ reading comprehension is better than conventional strategy.<sup>37</sup>

The second is Laila Febriani “ The Effect of Skimming Strategy on Students’ Reading Achievement at Grade XI in SMK Negeri 1 Sipirok”. The concluding of her research, there is the effect of skimming strategy on students’ reading achievement, where the mean score is 67.9 and control class is 76.84 with  $t_0$  is higher than  $t_t$  ( $1.88 > 1.66$ ). So, the implication of skimming

---

<sup>37</sup> Lonni Nur Iffah Nasution “The Effect of Cooperative Integrated Reading and Composition (CIRC) strategy on students’ reading comprehension at XI grade MAN 1 Padangsidempuan in 2014/2015 Academic Year, (Padangsidempuan IAIN, 2015), p.58.



strategy on students' reading achievement is better than conventional strategy.<sup>38</sup>

The last, Samrah Marlija Harahap "The Effect of Using K-W-L Strategy on Students' Reading Comprehension at Grade VIII MTs YPKS Padangsidempuan. She concluded that there is the effect of using K-W-L strategy on students' reading comprehension where the mean score is 83.75 and the control class 58.25 with  $t_0$  is higher than  $t_t$  ( $44.73 > 2.000$ ). so, the implication of Using K-W-L Strategy on Students' Reading Comprehension is better than conventional strategy.<sup>39</sup>

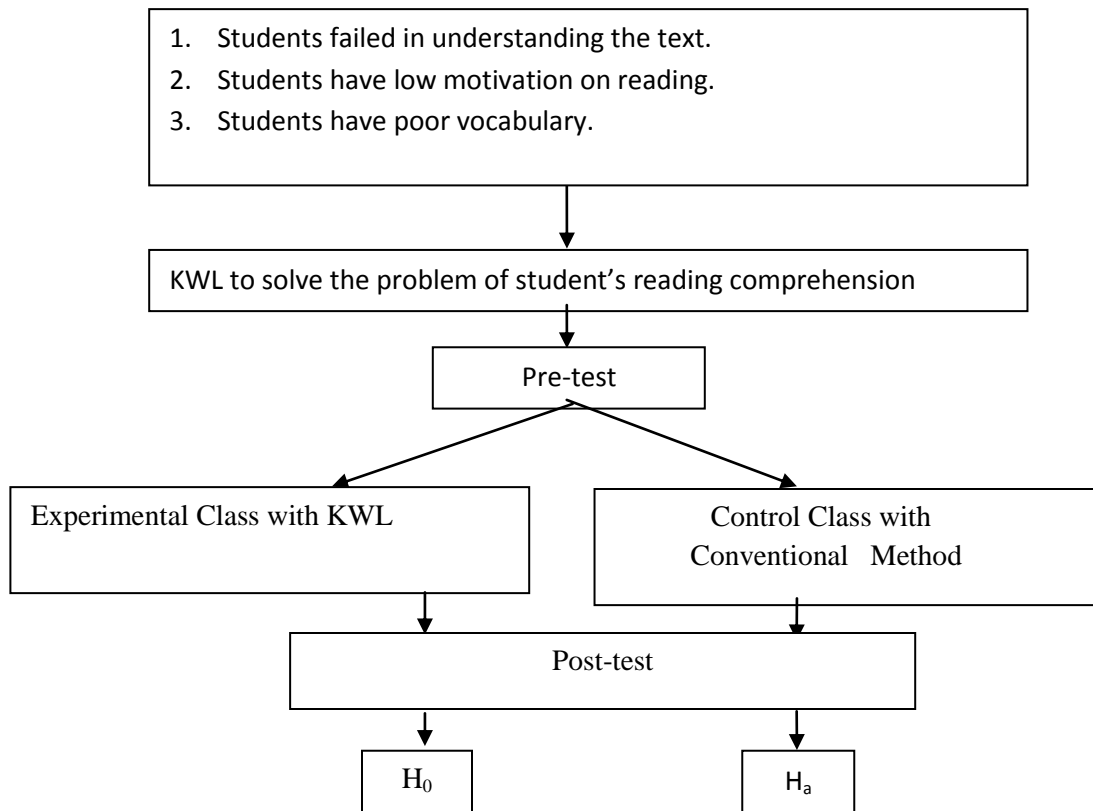
Based on descriptions above, the researcher hopes the Know, Want to know, Learned (KWL) Strategy can increase the students' reading comprehension and can complete the previous research. So, the researcher wants to research about "The Effect of Know, Want to know, Learned (KWL) Strategy on Students' Reading Comprehension in Expository Text at Grade XI in SMA N 1 Barumun".

---

<sup>38</sup> Laila Febriani, "The Effect of Skimming Strategy on Students' Reading Achievement at Grade XI in SMK Negeri 1 Sipirok in 2009/2010 Academic Year", (*Unpublished Thesis*, Padangsidempuan: IAIN, 2010), p.56.

<sup>39</sup> Samrah Marlija Harahap "The Effect of Using K-W-L Strategy on Students' Reading Comprehension at Grade VIII MTs YPKS Padangsidempuan in 2014/2015 Academic Year", (Padangsidempuan IAIN, 2015), p. 63.

### C. Conceptual Framework



The researcher found the problem that students failed in understanding the text, low motivation on reading, and students have poor vocabulary. Therefore, in this research uses KWL to solve the problem. Before doing KWL, researcher will give Pre-test to Control and Experimental Class. After that, researcher will teach Reading Comprehension with KWL to Experimental class, and the English Teacher with conventional method to Control class. Next, both are two classes are given Post-test, Experimental and Control class. Finally, the researcher will

compare the reading result of Pre-test and Post-test between Experimental and Control class.

### **E. 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.<sup>40</sup> While, Suharsimi Arikunto states that hypothesis is a provisional answer of result problem in a research.<sup>41</sup> 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 Know, Want to know, Learned (KWL) strategy on students' reading comprehension in expository text at grade XI in SMA N 1 Barumun ( $H_a$ ).
2. There is no the significant effect of Know, Want to know, Learned (KWL) strategy on students' reading comprehension in expository text at grade XI in SMA N 1 Barumun ( $H_0$ ).

---

<sup>40</sup>L.R. Gay and Peter Airasian, *Educational Research: Competencies for Analysis and Application*, (America: Prentice Hall, 2000), p. 71.

<sup>41</sup>Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: PT. Rineka Cipta, 2006), p.110.

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

#### **A. Place and Time of the Research**

The location of this research is at SMA N 1 Barumun. It is on Jln. Ki Hajar Dewantara, the regency of Padang Lawas or it is known by Palas, Sibuhuan.

Then, The time of the research was from November 07<sup>rd</sup>, 2016 until December 22<sup>th</sup>, 2017.

#### **B. The Research Design**

The kind of this research was quantitative research with experimental method. Experimental method is the type of research that can test hypotheses to establish cause and effect relationships.<sup>1</sup> 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 Know, Want to know, Learned (KWL) strategy.

The researcher used two classes in this research. One of the class was taught with Know. Want to know, Learned (KWL) strategy and called as Experimental class. Meanwhile the other class was not (be taught with conventional strategy) and called as Control class. It was done to know the effect of using treatment in experimental class.

---

<sup>1</sup>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 classes 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 <sub>1</sub>	X	O <sub>2</sub>
R	O <sub>3</sub>		O <sub>4</sub>

Where:

- R = The sample of the research
- O<sub>1</sub> = Pretest in experimental class
- O<sub>2</sub> = Posttest in experimental class
- X = Treatment
- O<sub>3</sub> = Pretest in control class
- O<sub>4</sub> = Posttest in control class<sup>2</sup>

## C. The Population and Sample

### 1. Population

According to Suharsimi Arikunto, "population is a set or collection of all elements possessing one or more attribute of interest".<sup>3</sup> This research will be implement in SMA N 1 Barumun. The population is grade XI Students at SMA

---

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

<sup>3</sup> Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik* Jakarta: Rineka Cipta, 1993), p.3.

N 1 Barumun in 2017/2018 academic year. There are seven class and these class consist of 185 students, present as follow:

**Table 2. The population of the grade XI students in SMA N 1 Barumun**

No	Class	Total students
1.	XI MIA 1	36
2.	XI MIA 2	25
3.	XI MIA 3	25
4.	XI MIA 4	24
5.	XI MIA 5	23
6.	XI MIA 6	25
7.	XI MIA 7	27
Total of Students		<u>185</u>

## 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.<sup>4</sup> In addition, sample is the subset of people from the population who will participate in the current study.<sup>5</sup> 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 strategy to take sample from the population that is done randomly

---

<sup>4</sup>L.R Gay and Peter Airasian, *Op.Cit.*, p. 121.

<sup>5</sup>Scott W. Vanderstoep and Deirdre D. Johnston, *Op.Cit.*, p. 26.

without paying attention to the strata in the population. This way is done when the members of population is homogenous.<sup>6</sup>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

The function of normality test is to know whether the data of research is normal or not. In this research, the researcher use normality test with using *Chi-Quadrate* formula, as follow:

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

Where:

$x^2$  = Chi-Quadrate

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

$f_h$  = Frequency is gotten from the sample as image from frequency is hoped from the population.<sup>7</sup>

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

---

<sup>6</sup>Sugiyono, *Op.Cit.*, p. 120.

<sup>7</sup>Anas Sudjiono, *Pengantar Statistik Pendidikan*, (Jakarta: PT. Raja Grafindo Persada, 1995), p. 353.

b) Homogeneity test

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

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

Where:

$n_1$  = Total of the data that bigger variant

$n_2$  = Total of the data that smaller variant<sup>8</sup>

Hypothesis is rejected if  $F \leq F_{\frac{1}{2} \alpha(n_1-1) (1= n_2-1)}$ , while if  $F_{\text{count}} > F_{\text{table}}$

hypothesis is accepted. It determined with significant level 5% (0.05) and dk numerator is  $(n_1-1)$ , while dk detominators 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 2 and XI MIA 3. The both classes consisted of 25 students. Here was the sample:

---

<sup>8</sup>Sugiyono, *Op.Cit.*, p. 275.



**Table 3. Sample of the Research**

<b>Sample</b>	<b>Class</b>	<b>Total</b>
Experimental Class	XI MIA 2	25
Control Class	XI MIA 3	25
<b>Total</b>		<b>50</b>

#### **D. Definition of Operational Variables**

The terms are used in this research are as follows:

##### **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. Know, Want to know, Learned (KWL) Strategy**

Know, Want to know, Learned (KWL) is a framework that is a strategy that used to connect a student's prior knowledge to what they are activity learning.

#### **E. Instruments of Collecting Data**

A good instrument certify the validity of the data. The researcher use instrument of validity and reliability for the taking the valid data. The researcher use test as instrumentation. Test is some of question or view or other tool use for measure skill, knowledge, intelligence and ability.

The researcher collect by giving the multiple-choice test. Cryil said, "A multiple-choice question (MCQs) is the test item usually set out in such a

way that the candidate is require to select the answer from a number of give options, only one of which is correct.”<sup>9</sup>

In this research, the test consist of 100 questions, in which 50 for pre-test, and 50 for post-test by choosing an answer from the 4 options to prepare the students’ reading comprehension. This test is given to both groups, experiment and control class. To find out the score of the students’ answer, the researcher give 2 score for each item. Thus, the maximum score of test is 100.

**Table 4. The Indicator Reading Comprehension Test in Pre Test**

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

---

<sup>9</sup> Cryil J. Weir, “*Communicative Language Testing*” (Printice Hall: 1990), p. 43

**Table 5. The Indicator Reading Comprehension Test in Post Test**

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

## F. Validity and Reliability 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.<sup>10</sup> Validity also concerns the extent to which the uses that are made

---

<sup>10</sup>Scott W. Vanderstoep and Deirdre D. Johnston, *Op.Cit.*, p. 59.

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 will be refer to list  $r$  biserial with  $r_t$  in 5% significant: 0, 413 and 1% significant: 0, 526. So, if  $r_{account} > r_{table}$  the test is classified valid.

To get the validity of the test, the formula of  $r$  pointbiserial can be use 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 sore

$SD_t$ : Standard Deviation of the total score

$p$  : Presentation of the right answer of the item test validity.

$q$  : presentation of the wrong answer of the item tested validity.<sup>11</sup>

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

---

<sup>11</sup> Hartono, *Statistik Untuk Penelitian*, (Yogyakarta: Pustaka Pelajar , 2004), p. 113.

the both, the researcher took 50 items each for pre test and post test. (See appendix 8 and 11).

## 2. Reliability of Instrument

Reliability is the degree of accuracy or precision in the measurements made by a research instrument.<sup>12</sup> To get the reliability of the test, Suharsimi Arikunto said that to obtain the reliability of the test, the researcher use formula K-R 20.

The formula:

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

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
- $q$  = Proportion of subject who is wrong answer<sup>13</sup>

Reliability is a good character of the test that refer to the consistency of the measurement. The test is reliable  $r_{\text{count}} > r_{\text{table}}$  by using formulation KR-20 with  $r_{\text{table}}$  0.70. (See appendix 13 and 15).

## G. The Procedures of Research

To collect the data, the researcher use test. In giving the test, it will divide into two kinds; pre-test and post-test. This test conclude some steps; they are:

---

<sup>12</sup>*Ibid.*, p. 181

<sup>13</sup>Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan, Edisi 2*, (Jakarta: Bumi Aksara, 2012), p.115.

### 1. Pre-test

The pre-test is conducted to find out the homogeneity of the sample. The function of the pre-test is to find the mean score of the experimental class and control class before the researcher give treatment. In this case, the researcher used some steps in giving pre-test. They are:

- a. The researcher prepared the test that would be fill by the students. It consist of 50 questions.
- b. The researcher distributed the test paper to both class; experimental and control class.
- c. The researcher explained what the students need to do.
- d. The researcher give the times to the students to answer the questions.
- e. The researcher collected the test paper.
- f. The researcher checked the answer and counts the students' score.

### 2. Treatment

The experimental group and the control group gives same material, which consist of communication aspects that take by the teacher in different ways. The experimental class is give treatment, it take by using the K-W-L strategy and the control class only by reading text.

### 3. Post-test

After giving the treatment, the researcher conducts a post-test. This post-test is the final test in the research, especially measuring the treatment, whether is significant or not. After conducting the post-test, the writer analyzed

the data, and then, the researcher finds out the effect of using KWL strategy in the experimental class. The researcher used some steps in giving post-test. They are:

- a. The researcher prepares the test that will be fill by the students. It consist of 50 questions.
- b. The researcher distributes the test paper to both class; experiment and control class.
- c. The researcher explains what the students need to do.
- d. The researcher give the times to the students to answer the questions.
- e. The researcher collected the test paper.
- f. The researcher checked the answer and counts the students' score

## H. The Technique of Analyzing Data

The techniques of analyzing data that used by the researcher is:

1. Requirement test
  - a. Normality test

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

The formula is as follow:

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

Where:

$x^2$  = Chi-Quadrate

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

$f_h$  = Frequency is gotten from the sample as image from frequency is hoped from the population.<sup>14</sup>

b. Homogeneity Test

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

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

Where:

$n_1$  = Total of the data that bigger variant

$n_2$  = Total of the data that smaller variant<sup>15</sup>

Hypothesis is rejected if  $F \leq F_{\frac{1}{2} \alpha(n_1-1) (1= n_2-1)}$ , while if  $F_{\text{count}} > F_{\text{table}}$

hypothesis is accepted. It determined with significant level 5% (0.05) and dk numerator is  $(n_1-1)$ , while dk detominators 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 will be analyzed by using *t-test* formula. The formula i s as follow:

$$Tt = \frac{M_1 - M_2}{\sqrt{\left(\frac{\sum x_1^2 + \sum x_2^2}{n_1 + n_2 - 2}\right) \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where:

$Tt$  = t-test

$M_1$  = The mean score of the experimental class

$M_2$  = The mean score of the control class

---

<sup>14</sup> Anas Sudijono, *Pengantar Statistik Penelitian*, P.28

<sup>15</sup> Sugiyono, *Op.Cit.*, p. 276.



$n_1^2$  = 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<sup>16</sup>

---

<sup>16</sup>*Ibid.*, p. 273.

## **CHAPTER IV**

### **THE RESULT OF RESEARCH**

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

##### **1. Description of Data before Know, Want to know, Learned (KWL) Strategy**

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

Based on the students' answers in pre-test the researcher has calculated the students' score in appendix 16 and 17. Then, the researcher drawn the table sum in the following:

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

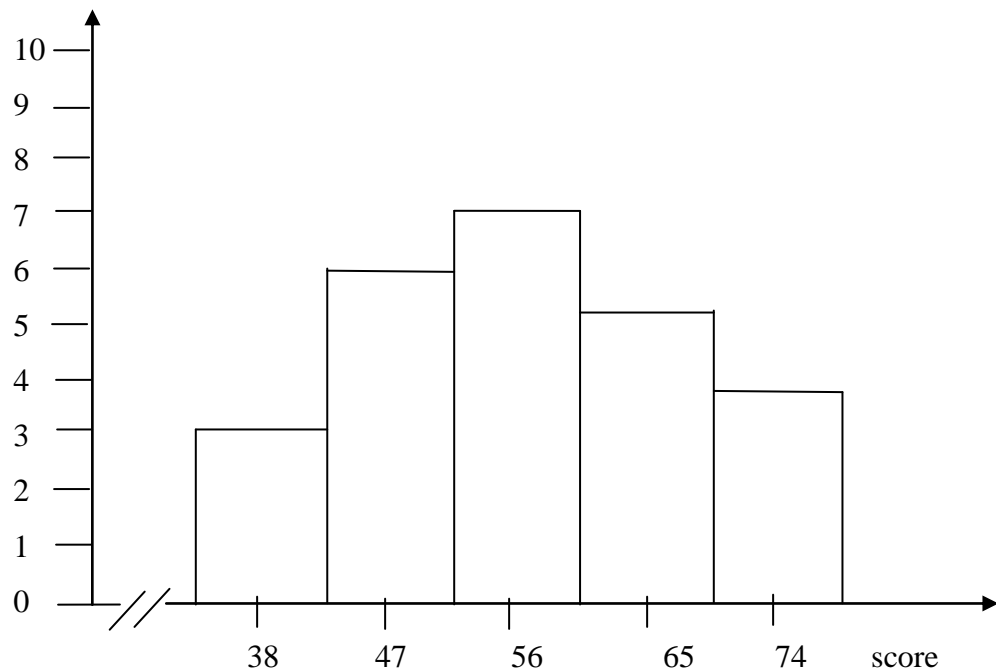
Total	1420
Highest score	78
Lowest score	34
Mean	55.64
Median	56
Modus	56.36
Range	44
Interval	9
Standard deviation	11.16
Variant	147

From the table above the total score of experiment class in pre-test was 1420, mean score was 55.64, median was 56, modus was 56.36, range was 44, interval was 9, standard deviation was 11.16, and variant was 147. The researcher got the highest score was 78 and the lowest score was 34. It can be seen on appendix 17. Then, the computed of the frequency distribution of the students' score of experiment class could be applied into table frequency distribution as follow:

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

No	Interval Class	Mid Point	F	Percentages
1	34-42	38	3	12 %
2	43-51	47	6	24 %
3	52-60	56	7	28 %
4	61-69	65	5	20 %
5	70-78	74	4	16 %
			25	100 %

From the table above, it can be concluded that most of students are in interval 56 – 60 (7 students/28 %). The least of students is 34-43 (3 students/12 %). Clear description of the data is presented in histogram on the following figure:



**Figure 1: Description of Experimental Class (Pre Test)**

From the histogram above, the frequency of students' score from 34 up to 42 was 3; 43 up to 51 was 6; 52 up to 60 was 7; 61 up to 69 was 5; 70 up to 78 was 4.

The figure shows that the highest interval (52-60) was 7 students, and the lowest interval (34-42) was 3 students.

**b. Pre-test Score of Control Class**

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

Total	1324
Highest score	70
Lowest score	36
Mean	54.28
Median	53
Modus	52.58
Range	34
Interval	7
Standard deviation	9.31
Variant	106

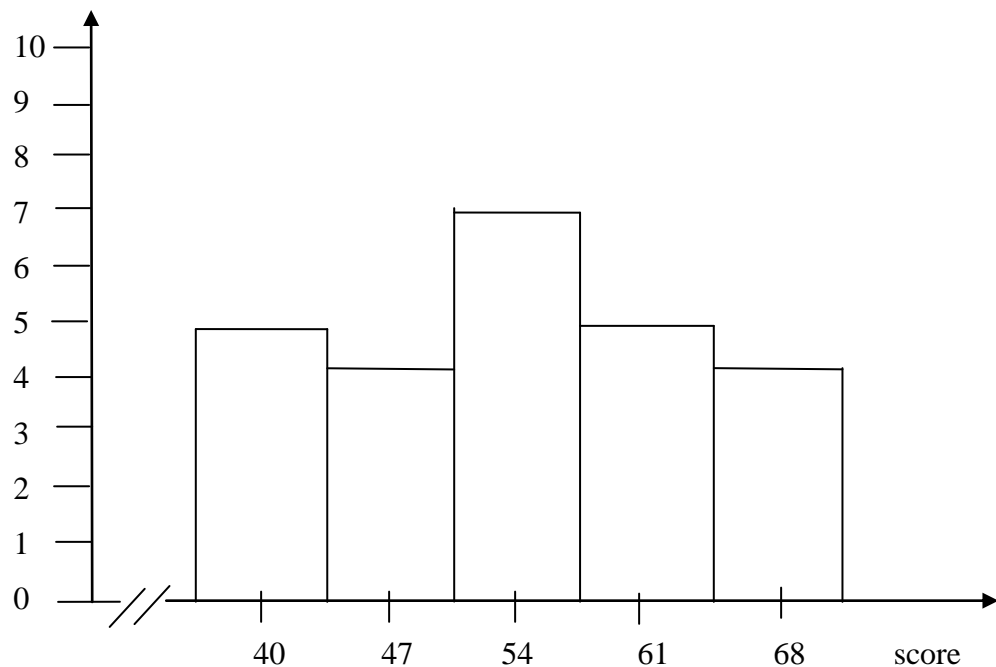
From the table above the total score of control class in pre-test was 1323, mean score was 54.28, standard deviation was 9.31, variant was 106, range was 34, interval was 7, median was 53, and modus was 52.58. The researcher got the highest score was 70 and the lowest score was 36. (See appendix 17). Then, the computed of the frequency distribution of the students' score of control class could be applied into table frequency distribution as follow:

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

No	Interval Class	Mid Point	F	Percentages
1	36 – 42	40	5	20 %
2	43 – 49	47	4	16 %
3	50 – 56	54	7	28 %
4	57 – 63	61	5	20 %
5	64 – 70	68	4	16 %
			25	100 %

From the table above, it can be concluded that the middle interval (50-56) had the biggest frequency (7 students/28 %). The highest interval (60-70) had 4 students and the lowest interval was (36-42) with 4 students.

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



**Figure 2: Description of Control Class (Pre-Test)**

From the histogram above, the frequency of students' score from 36 up to 42 was 5; 43 up to 49 was 4; 50 up to 56 was 7; 57 up to 63 was 5; 64 up to 70 was 4.

## 2. Description of data after Using Know, Want to know, Learned (KWL) Strategy

### a. Post-test Score of Experimental Class

**Table 10**  
**The Score of Experimental Class in Post Test**

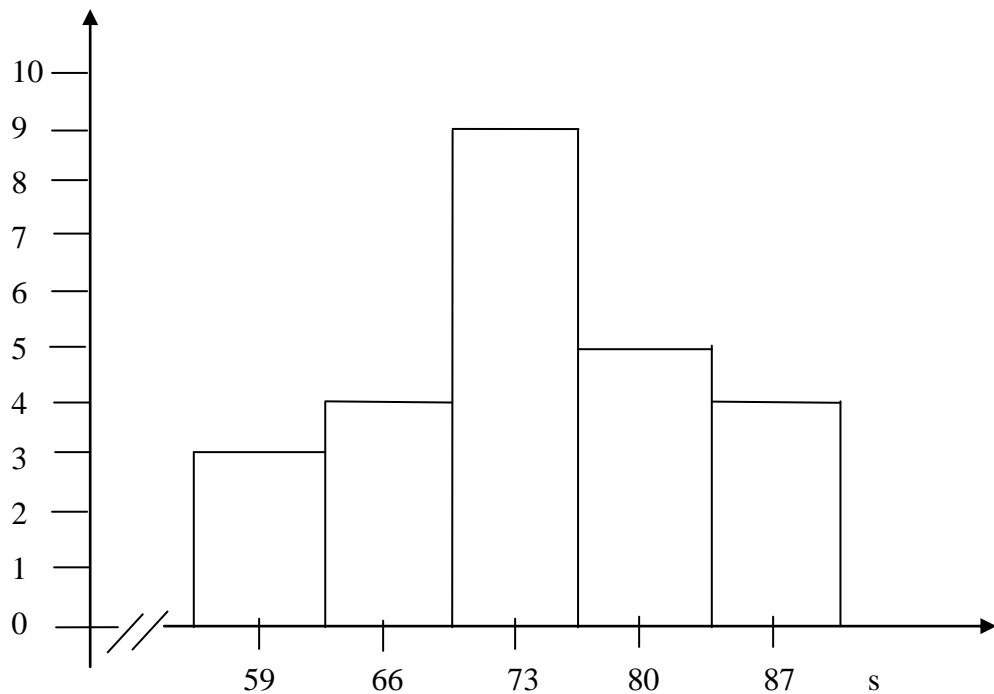
Total	1862
Highest score	90
Lowest score	56
Mean	73.84
Median	73.77
Modus	72.58
Range	34
Interval	7
Standard deviation	8.33
Variant	92.26

From the table above, total score of experiment class in post-test was 1862, mean score was 73.84, standard deviation was 8.33, variant was 92.26, median was 73.77, range was 34, modus was 72.58, and interval was 7. The researcher got the highest score was 90 and the lowest score was 56. (See appendix 20). Then, the computed of the frequency distribution of the students' score of experiment class could be applied into table frequency distribution as follow:

**Table 11**  
**Frequency Distribution of Students' Score**

No	Interval	Mid Point	F	Percentages
1.	56 – 62	59	3	12 %
2.	63 – 69	66	4	16 %
3.	70 – 76	73	9	36 %
4.	77 – 83	80	5	20 %
5.	84 – 90	87	4	16 %
			25	100 %

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



**Figure 3: Description of Experimental Class (Post-Test)**

From the histogram above, the frequency of students' score from 56 up to 62 was 3; 63 up to 69 was 4; 70 up to 76 was 9; 77 up to 83 was 5; 84 up to 90 was 4.

Then, the interval which had highest frequency was 70-76 – and the lowest interval was 56-62 and highest interval was 84 – 90.

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

The result that had been gotten by the students in answering the question (test) after the researcher taught the reading by using conventional teaching can be seen in the following table:

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

Total	1559
Highest score	80
Lowest score	36
Mean	61.24
Median	60.79
Modus	57.46
Range	44
Interval	9
Standard deviation	11.25
Variant	150.40

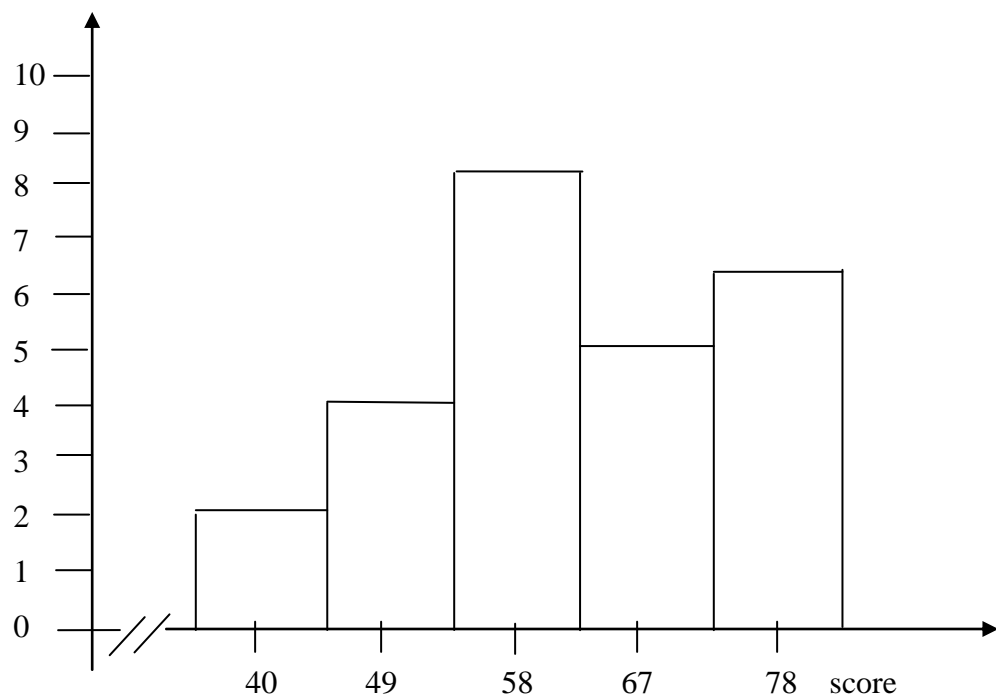
From the table above the total score of control class in post-test was 1559, mean was 61.24, standard deviation was 11.25, variant was 150.40, median was 60.79, range was 44, modus was 57.46, and interval was 9. The researcher got the highest score was 80 and the lowest score was 36. (See appendix 20). Then, the calculation of the frequency distribution of the students' score of control class could be applied into table frequency distribution as follow:



**Table 13**  
**Frequency Distribution of Students' Score**

No	Interval	Mid Point	F	Percentages
1	36 – 44	40	2	8 %
2	45 – 53	49	4	16 %
3	54 – 62	58	8	32 %
4	63 – 71	67	5	20 %
5	72 – 80	76	6	24 %

For the clear description of the data, the researcher presents them in histogram on the following figure:



**Figure 4: Description of Control Class (Post-Test)**

From the histogram above, the frequency of students' score from 36 up to 44 was 2; 45 up to 53 was 4; 54 up to 62 was 8 ; 63 up to 71 was 5; 72 up to 80 was 6.

Then, the interval which had highest frequency was 54 – 62(8 students) and the interval which had lowest frequency was 36 – 44 (2 students).

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

#### a. The Comparison Data between Pre-test and Post-test by using Know, Want to know, Learned (KWL) Strategy

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 giving the treatment.

From the description data in pre test of experimental and control class, there was comparison score between pre-test experimental class before and after giving the treatment by using Know, Want to know, Learned (KWL) strategy. 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)**

<b>Students' Reading Comprehension in Pre-test</b>				
No	Interval	Mid Point	F	Percentages
1	34 – 42	38	3	12%
2	43 – 51	47	6	24%
3	52 – 60	56	7	28%
4	61 – 69	65	5	20%
5	70 – 78	74	4	16%
<b>Students' Reading Comprehension in Post-test</b>				
No	Interval	Mid Point	Frequency	Percentages
1	56 – 62	59	3	12%
2	63 – 69	66	4	16%
3	70 – 76	73	9	36%
4	77 – 83	80	5	20%
5	84 – 90	87	4	16%

From the table above, it can be seen that the highest interval score in pre-test experimental class was 70-78 (4 students/16%) and the lowest interval score was 34-42 (3 students/12%), meanwhile the highest interval score in post-test was 84-90 (4 students/16%) and the lowest score was 56-62 (3 students/12%).

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

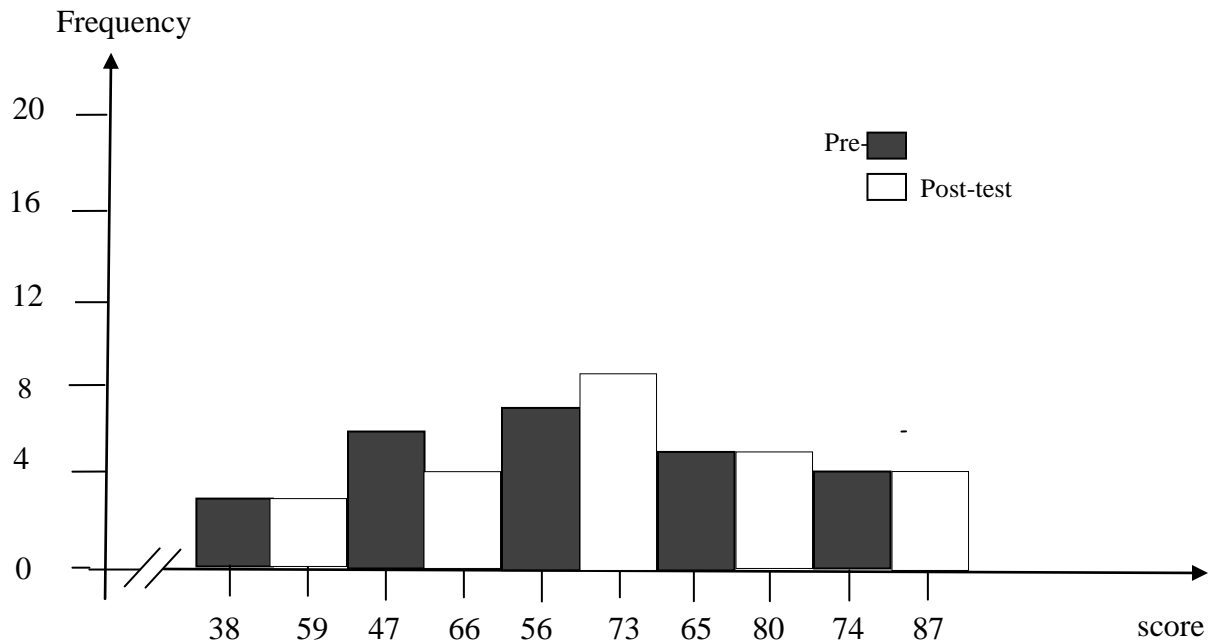


Figure 5. Histogram the Comparison Data of Students' Reading Comprehension in Pre-test and Post-test (Experimental Class)

From the histogram above, the frequency of students' score of experimental class from 34 up to 42 (3 students/12%) in pre-test, and 56 up to 62 (3 students/12%) in post-test; 43 up to 51 (6 students/24%) in pre-test, and 63 up to 69 (4 students/16%) in post-test; 52 up to 60 (7 students/28%) in pre-test, and 70 up to 76 (9 students/36%) in post-test; 61 up to 69 (5 students/20%) in pre-

test, and 77 up to 83 (5 students/20%) in post-test; 70 up to 78 (4 students/16%) in pre-test, and 84 up to 90 (4 students/16%) in post-test.

Then, the interval which had highest frequency in pre test was 52-60 (7 students/28%) and the interval which had lowest frequency was 34-42 (3 students/12%). In post test of experimental class, the interval which had highest frequency was 70-76 (9 students/36%) and the interval which had lowest frequency was 56-62 (3 students/12%).

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

From 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 giving the treatment by using Conventional strategy. 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)**

<b>Students' Reading Comprehension in Pre-test</b>				
No	Interval	Mid Point	Frequency	Percentages
1	36 – 42	40	5	20%
2	43 – 49	47	4	16%
3	50 – 56	54	7	28%
4	57 – 63	61	5	20%
5	64 – 70	68	4	16%
<b>Students' Reading Comprehension in Post-test</b>				
No	Interval	Mid Point	Frequency	Percentages
1	36 – 44	40	2	8%
2	45 – 53	49	4	16%
3	54 – 62	58	8	32%
4	63 – 71	67	5	20%
5	72 – 80	76	6	24%

From the table above, it can be seen that the highest interval score in pre-test control class was 64-70 (4 students/16%) and the lowest interval score was 36-42 (5 students/20%), meanwhile the highest interval score in post-test was 72-80 (6 students/24%), and the lowest score was 36-44 (2 student/8%).

For the clear description of the data, the researcher presents them in histogram on the following figure:

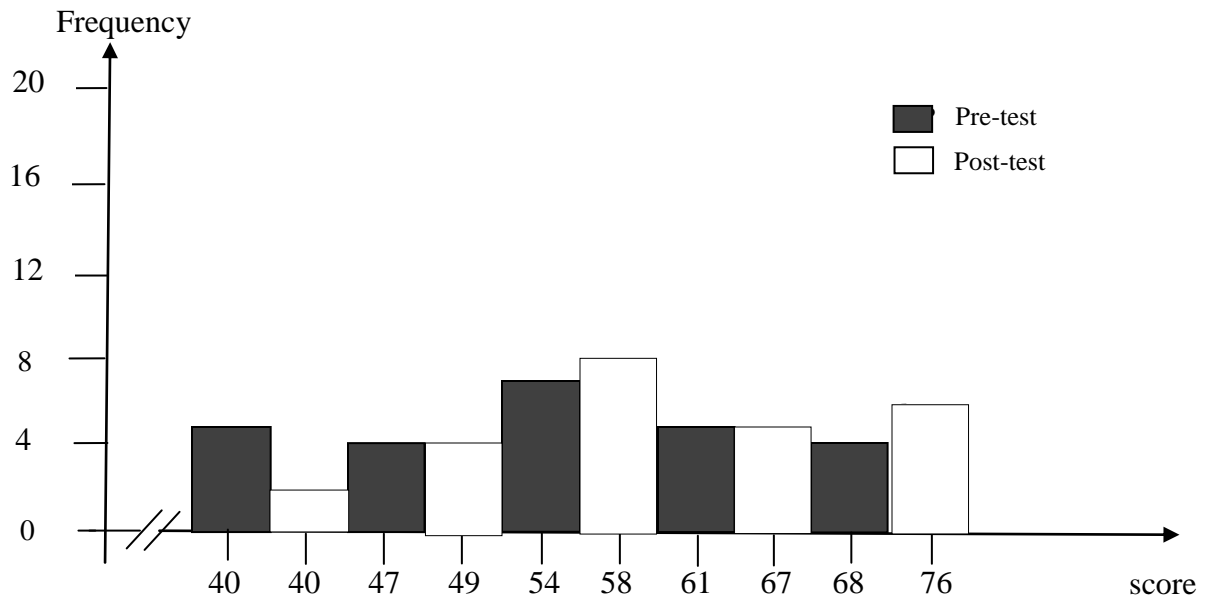


Figure 6. Histogram the Comparison Data of Students' Reading Comprehension in Pre-test and Post-test (Control Class)  
From the histogram above, the frequency of students' score of control

class from 36 up to 42 (5 students/20%) in pre test, and 36 up to 44 (2 student/8%) in post-test; 43 up to 49 (4 students/16%) in pre-test, and 45 up to 53 (4 students/16%) in post-test; 50 up to 56 (7 students/28%) in pre-test, and 54 up to 62 (8 students/32%) in post-test; 57 up to 63 (5 students/20%) in pre-test, and

63 up to 71 (5 students/20%) in post-test; 64 up to 70 (4 students/16%) in pre-test, and 72 up to 80 (6 students/24%) in post-test.

Then, the interval which had highest frequency in pre test was 50-56 (7 students/28%)) and the interval which had lowest frequency was 43-49 (4 students/16%). In post test of control class, the interval which had highest frequency was 54-62 (8 students/32%) and the interval which had lowest frequency was 36-44 (2 student/8%).

**c. The Comparison Data between Using Know, Want to know, Learned (KWL) and Conventional Strategy in Post-test**

By giving pre test to both of classes the researcher knew the students' ability in reading comprehension before giving the treatment. In pre test, the researcher did not apply treatment to experimental and control class. After that, the researcher giving the treatment to one of class as experimental class and other class was not giving the treatment as control class. The experimental class by using Know, Want to know, Learned (KWL) strategy and control class by using Conventional strategy. The researcher got the comparison data between post-test score an experimental and control class after giving the treatment. The comparison data itcan be seen in the following table:

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

<b>Students' Reading Comprehension in Post-test (Experimental Class)</b>				
No	Interval	Mid Point	Frequency	Percentages
1	56 – 62	59	3	12%
2	63 – 69	66	4	16%
3	70 – 76	73	9	36%
4	77 – 83	80	5	20%
5	84 – 90	87	4	16%
<b>Students' Reading Comprehension in Post-test (Control Class)</b>				
No	Interval	Mid Point	Frequency	Percentages
1	36 – 44	40	2	8%
2	45 – 53	49	4	16%
3	54 – 62	58	8	32%
4	63 – 71	67	5	20%
5	72 – 80	76	6	24%

From the table above, it can be seen that the highest interval score in post test of experimental class was 84-90 (4 students/16%) and the lowest interval score was 56-62 (3 students/12%), meanwhile the control class was 72-80 (6 students/24%), and the lowest interval score was 36-44 (2 student/8%).

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:

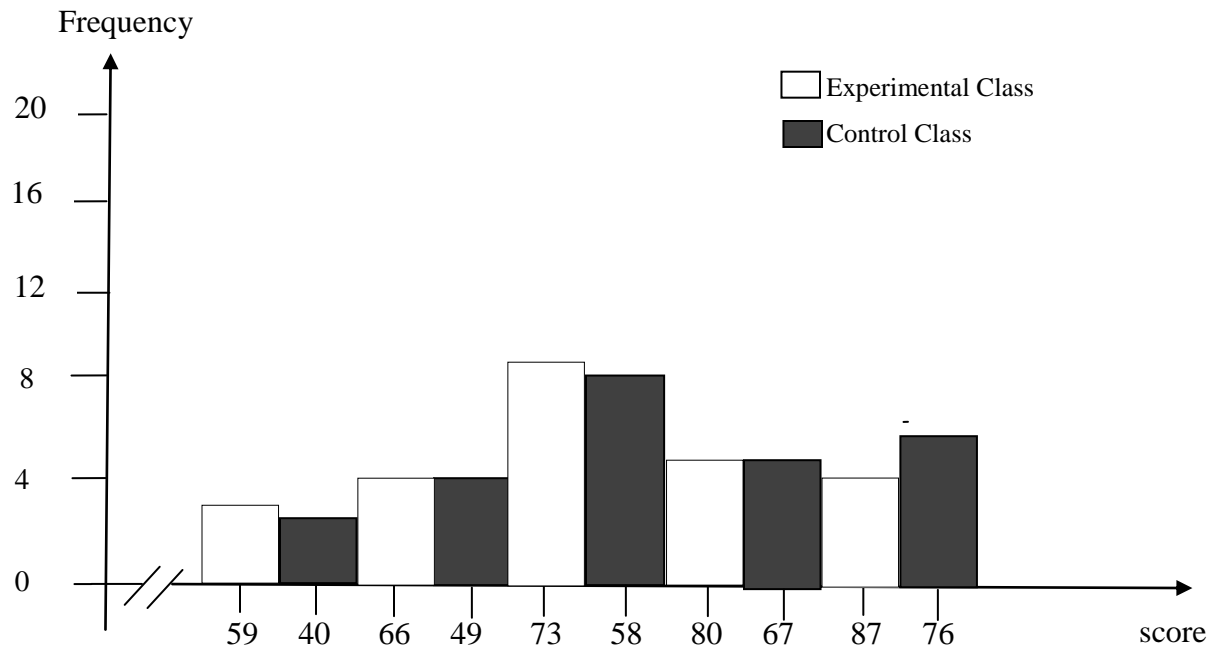


Figure 7. Histogram the Comparison Data of Students' Reading Comprehension in Experimental and Control Class (Post-test)

From the histogram above, it can be seen that the frequency of students' score in post test from 56 up to 62 (3 students/12%) for experimental class, and 36 up to 44 (2 student/8%) for control class; 63 up to 69 (4 students/16%) for experimental class, and 45 up to 53 (4 students/16%) for control class; 70 up to 76 (9 students/36%) for experimental class, and 54 up to 62 (8 students/32%) for control class; 77 up to 83 (5 students/20%) for experimental class, and 63 up to 71 (5 students/20%) for control class; 84 up to 90 (4 students/16%) for experimental class, and 72 up to 80 (6 students/24%) for control



class. Then, the interval which had highest frequency in post test of experimental class was 70-76 (9 students/36%) and the interval which had lowest frequency was 56-62 (3 students/12%). In post test of control class, the interval which had highest frequency was 54-62 (8 students/32%) and the interval which had lowest frequency was 36-44 (2 student/8%).

From the description of comparison data above, it can be seen that the students' scores of experimental class by using Know, Want to know, Learned (KWL) strategy was higher than the students' score of control class by using Conventional strategy.

## B. Technique of Hypothesis

### 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	
	$t_{\text{count}}$	$t_{\text{table}}$	$f_{\text{count}}$	$f_{\text{table}}$
Experimental Class	3.68	9.488	1.38 < 2.069	
Control Class	5.77	9.488		

From the table above researcher calculation, the score of experiment class  $Lo = 3.68 < Lt = 9.488$  with  $n = 29$  and control class  $Lo = 5.77 < Lt = 9.488$  with  $n = 25$ , and real level  $\alpha 0.05$ . Cause  $Lo < Lt$  in the both class. So,  $H_a$  was accepted. It means that experiment class and control class were distributed normal. (See appendix 17).

The coefficient of  $F_{\text{count}} = 1.38$  was compared with  $F_{\text{table}}$ . Where  $F_{\text{table}}$  was determined at real  $\alpha 0.05$ , and the different numerator  $dk = N-1 = 25-1 = 25$  and denominator  $dk N-1 = 25-1 = 24$ . So, by using the list of critical value at F distribution is got  $F_{0.05} = 2.064$ . It showed that  $F_{\text{count}}(1.38) < F_{\text{table}} (2.064)$ . It showed that both experimental and control class were homogeneous. The calculation can be seen on appendix 17.

**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	
	$t_{\text{count}}$	$t_{\text{table}}$	$F_{\text{count}}$	$F_{\text{table}}$
Experimental Class	7.63	9.488	1.63 < 2.069	
Control Class	5.034	9.488		

From the table above researcher calculation the score of experimental class  $Lo = 7.63 < Lt = 9.488$  with  $n = 25$  and control class  $Lo = 5.034 < Lt = 9.488$  with  $n = 25$ , and real level  $\alpha 0.05$ . Because  $Lo < Lt$  in the both class, it means  $H_a$  was accepted. It meant that experiment class and control class were distributed normal. It can be seen on appendix 20.

The coefficient of  $F_{\text{count}} = 1.63$  was compared with  $F_{\text{table}}$ . Where  $F_{\text{table}}$  was determined at real  $\alpha 0.05$ , and the different numerator  $dk = N-1 = 25-1 = 24$  and denominator  $dk N-1 = 25-1 = 24$ . So, by using the list of critical value at F distribution is got  $F_{0.05} = 2.069$ . It showed that  $F_{\text{count}}(1.63) < F_{\text{table}}(2.069)$ . So, the researcher concluded that the variant from the data of the students' reading

comprehension at grade XI in SMA N 1 Barumun in experimental and control class was homogenous. It can be seen on appendix 21.

## 2. Hypothesis Test

The data would be analyzed to prove the hypothesis. It used formula of t-test. Hypothesis of the research was “there is the significant effect of know, want to know, learned (kwl) strategy on students’ reading comprehension in expository text at grade XI in SMA N 1 Barumun” The result of t-test was as follow:

**Table 19**  
**Result of T-test**

Post-test	
$t_{\text{count}}$	$t_{\text{table}}$
4.14	2.021

From researcher calculation, researcher found that  $t_{\text{count}}$  4.14 while  $t_{\text{table}}$  2.021 with opportunity  $(1 - \alpha) = 1 - 5\% = 95\%$  and  $dk = n_1 + n_2 - 2 = 25 + 25 - 2 = 48$ . Cause  $t_{\text{count}} > t_{\text{table}}$  ( $4.14 > 2.012$ ), it means that hypothesis  $H_a$  was accepted and  $H_0$  was rejected. So, there is the significant effect of know, want to know, learned (kwl) strategy on students’ reading comprehension in expository text at grade XI in SMA N 1 Barumun. The calculation of hypothesis test can be seen on appendix 23.

### C. Discussion

From the related findings, 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. First, “*The Effect of Cooperative Integrated Reading and Composition (CIRC) Strategy on Students’ Reading Comprehension...*” showed that the experimental group got 80.95 for the mean score of pre test. Second, “*The Effect of Skimming Strategy on Students’ Achievement in Reading Comprehension...*” showed that the experimental group got 67.9 for the mean score of pre-test. *The Effect of Cooperative Integrated Reading and Composition (CIRC) Strategy on Students’ Reading Comprehension* pre-test result was higher than *The Effect of Skimming Strategy on Students’ Achievement in Reading Comprehension* result. The last, “*The Effect of Using K-W-L Strategy on Students’ Reading Comprehension...*” showed that the experimental group got 83.75 for the mean score of pre-test. *The Effect of Using K-W-L Strategy on Students’ Reading Comprehension* pre-test result was higher than *The Effect of Skimming Strategy on Students’ Achievement in Reading Comprehension*. Then, *The Effect of Cooperative Integrated Reading and Composition (CIRC) Strategy on Students’ Reading Comprehension* pre-test result was higher than *The Effect of Skimming Strategy on Students’ Achievement in Reading Comprehension*. Meanwhile, the researcher “*The Effect of Know, Want to know, Learned (KWL) Strategy on Students’ Reading Comprehension in Expository Text...*” got the mean score of pre-test of the experimental group was 55.64 and it was the lower pre-test result than *The Effect of Cooperative Integrated Reading and*

*Composition (CIRC) Strategy on Students' Reading Comprehension* result but higher pre-test result than *The Effect of Skimming Strategy on Students' Achievement in Reading Comprehension* and *The Effect of Using K-W-L Strategy on Students' Reading Comprehension* result of the related findings. From the above description, it can be seen that the highest mean score of pre-test of the experimental group was gotten by the “*The Effect of Using K-W-L Strategy on Students' Reading Comprehension...*” where the mean score of pre-test was 83.75 and the lowest mean score of pre-test of the experimental group was gotten by “*The Effect of Skimming Strategy on Students' Reading Comprehension...*” where the mean score of pre-test was 67.9

Then, for the post-test result, *The Effect of Cooperative Integrated Reading and Composition (CIRC) Strategy on Students' Reading Comprehension*<sup>1</sup> got the experimental class' score was 75.85. *The Effect of Skimming Strategy on Students' Achievement in Reading Comprehension*<sup>2</sup> got the experimental class' score was 76,84 and it was higher than “*The Effect of Cooperative Integrated Reading and Composition (CIRC) Strategy on Students' Reading Comprehension . The Effect of Using K-W-L Strategy on Students' Reading Comprehension*”<sup>3</sup> got the experimental class' score was 58.25 , and it lower than *Effect of Cooperative Integrated Reading and Composition (CIRC) Strategy on Students' Reading Comprehension* and *The Effect of Skimming Strategy on Students' Achievement in Reading Comprehension*.

---

<sup>1</sup>Lonni Nur Iffah Nasution, *Op.Cit.*

<sup>2</sup>Laila Febriani, *Op.Cit.*

<sup>3</sup>Samrah Marlija Harahap, *Op.Cit.*

Beside that, the researcher got the mean score for experimental class after using know, want to know, learned (kwl) strategy was 73.84 and it was the highest score among the related findings.

From the description, it can be seen that the highest mean score of post-test of the experimental group was gotten by the researcher "*The Effect of Know, Want to know, Learned (KWL) Strategy on Students' Reading Comprehension in Expository Text*" where the mean score of post-test was 73.84 and the lowest mean score of post-test was gotten by "*The Effect of Using K-W-L Strategy on Students' Reading Comprehension*" in her thesis where the mean score of post-test was 58.25. So, among the mean scores of post-test, the mean scores have increased than pre-test.

Based on the result, the researcher has got the significant effect of know, want to know, learned (kwl) strategy on students' reading comprehension in expository text, so have the researcher who mentioned in related finding. *The Effect of Cooperative Integrated Reading and Composition (CIRC) Strategy on Students' Reading Comprehension*<sup>4</sup> found that  $t_0$  was higher than  $t_t$  ( $6.98 > 2.021$ ), "*The Effect of Skimming Strategy on Students' Achievement in Reading Comprehension*"<sup>5</sup> found that  $t_0$  was higher than  $t_t$  ( $1.88 > 1.66$ ), *The Effect of Using K-W-L Strategy on Students' Reading Comprehension*<sup>6</sup> found that  $t_0$  was higher than  $t_t$  ( $44.73 > 2.000$ ), From the description, t-test result from *The Effect of Using K-W-L Strategy on*

---

<sup>4</sup>Lonni Nur Iffah Nasution, The Effect of Cooperative Integrated Reading and Composition (CIRC) strategy on students' reading comprehension at XI grade MAN 1 Padangsidempuan...

<sup>5</sup>Laila Febriani, The Effect of Skimming Strategy on Students' Reading Achievement...

<sup>6</sup>Samrah Marlija Harahap, The Effect of Using K-W-L Strategy on Students' Reading Comprehension...

*Students' Reading Comprehension* was the highest between *The Effect of Cooperative Integrated Reading and Composition (CIRC) Strategy on Students' Reading Comprehension* and “*The Effect of Skimming Strategy on Students' Achievement in Reading Comprehension*” result and t-test result from “*The Effect of Skimming Strategy on Students' Achievement in Reading Comprehension*” was lowest among them.

Beside that, the researcher also found that  $t_0$  is higher than  $t_t$  where  $t_0$  was 4.14 and  $t_t$  was 2.021 ( $4.14 > 2.021$ ). Where, the researcher result of t-test was the highest among the related findings result. So, the result of t-test of Know, Want to know, Learned (KWL) Strategy highest than the result t-test of related findings. It can be seen that among the researches, the using of Know, Want to know, Learned (KWL) Strategy gave the effect on students' reading comprehension in expository text especially at grade XI in SMA N 1 Barumun where it is suitable with the theory from Roehl, definition of reading comprehension is an ability to understand what the readers read where words have context and texts have meaning.<sup>7</sup> Besides that, the students could active in their class, so that students easy in remembering what students were learned. This proofs show that know, want to know, learned (kwl) strategy is suitable to be applied in teaching reading because it has been proven by the previous researches and the theory. So, know, want to know, learned (kwl) strategy

---

<sup>7</sup>K.M. Roehl, *Developing Reading Comprehension Skill in EFL*, (Taiwan: St. Jhon's University, 2003), p.177.

has given the significant effect on the research that has been done by the researcher or the other researcher who mentioned in related finding.

From the result of the research that is previously stated, it was proved that the students of the experimental group who were taught reading comprehension by using know, want to know, learned (kwl) strategy got better result than the control group that were taught reading comprehension by using conventional strategy.

#### **D. Limitation of the Research**

The research was limited in some situations. It was the problem 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. 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 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. The score of students' reading comprehension before using know, want to know, learned (kwl) strategy at grade XI in SMA N 1 Barumun was low. Before using know, want to know, learned (kwl) strategy , the mean score of experimental was 55,64 and the mean score of control class was 54,28.
2. After using know, want to know, learned (kwl) strategy , the mean score of experimental class was 73,84 . then the mean score of control class 61,24.
3. The result of research showed that the students' score in the experimental class was higher than control class. Even though it was not a high difference, the result prove that  $t_0$  was higher than  $t_t$ .  $t_0$  was 4.14 and  $t_t$  was 2.021 ( $4.14 > 2.021$ ). It means that there was a significant effect of know, want to know, learned (kwl) strategy on students' reading comprehension in expository text at grade XI in SMA N 1 Barumun. So the hypothesis was accepted.

## **B. Suggestion**

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

1. The Headmaster of SMA N 1 Barumun, it can be used to motivate the teachers to teach as well as possible to maximize learning writing process because through this research it was proven that this strategy increased students reading comprehension.
2. English teacher, from the research result it can be seen that the students' score were unsatisfied. So, the researcher hopes to English teacher of SMA N 1 Barumun apply various innovative strategies in teaching English. It also can be supported by choosing right strategy 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.
3. Other researchers, the researcher hopes that the others researchers who want to conduct a research related to this research to find the others influence of these reading comprehension in order to motivate readers more critics and consider whatever they read.

## REFERENCES

- Anas, Sudjiono. *Pengantar Statistik Pendidikan*. Jakarta: PT. Raja Grafindo Persada. 1995.
- Anita, Lie. *Cooperative Learning*. Jakarta: PT. Grasindo. 2008.
- Arikunto, Suharsimi, *Prosedur Penelitian Suatu Pendekatan Paktik*, Jakarta: RinekaCipta, 1993.
- Brown, H. Douglas. *Teaching by Principle: An Interactive Approach to Language Pedagogy*. USA: Prentice Hall.
- Deriden,Jhon. *Conventional Technique*. Retrieved from <http://www.britania.com/Ebchecked/topic/421797/nnucler-strategy/52993/conventional-strategy>. on December 24<sup>th</sup>, 2016 at 10.00 p.m.
- Djoehana. D. Oka et all, *Avanced Reading*, Jakarta: Universitas Terbuka, 2004
- Dupuis, Mary M. And Linda H. Merchant. *Reading Across the Curriculum: A Research Refort for Teachers*. Bloominton, Indiana: Edinfo Press. 1993.
- Febriani Laila, “The Effect of Skimming Strategy on Students’ Reading Achievement at Grade XI in SMK Negeri 1 Sipirok in 2009/2010 Academic Year”, (*Unpublished Thesis*, Padangsidimpuan: IAIN, 2010), p.56.
- Gay, L.R. and Peter Airasian. *Educational Research: Competencies for Analysis and Application*. America: Prentice Hall. 2000.
- Grabe, William. *Reading in a Second Language*. Cambridge: Cambri\_ø-University Press. 2009.
- Hartono. *Statistik Untuk Penelitian*. Yogyakarta: Pustaka Pelajar. 2004.
- Hudson. The Meaning of Conventional Teaching (*Online*). Retrieved from <http://www.conventional-strategy/topic/54372-strategy>., on October, 02<sup>nd</sup> 2016 at 11.30 am.
- Hornby, A.S. *Oxford Advanced Learner’s Dictionary of Current English*. New York: Oxford University Press. 1995.

Interview with Mrs Anggun Sasmita Siagian, English teacher at grade XI in SMA N 1 Brumun, (Barumun: SMA N 1 Barumun), Saturday, 22 October 2016.

Istarani. *58 Model Pembelajaran Inovatif*. Medan: Media Persada. 2014.

Ibrahim N. N, The use of KWL technique in teaching reading descriptive text: A quasi-experimental study in the first grade of a senior high school in Bandung. Available at [http://a-research.upi.edu/operator/upload/sing0608702\\_chapter3.pdf](http://a-research.upi.edu/operator/upload/sing0608702_chapter3.pdf) (Retrieved on November 1, 6, 2012. 08:30 p.m).

Iffah Nasution, Lonni Nur “The Effect of Cooperative Integrated Reading and Composition (CIRC) strategy on students’ reading comprehension at XI grade MAN 1 Padangsidimpuan in 2014/2015 Academic Year, Padangsidimpuan IAIN, 2015.

Kisno Shinoda and Sanggam Siahaan, *Generic Text Structure*, Yogyakarta: Graha Ilmu, 2008.

Marlija Harahap, Samrah “The Effect of Using K-W-L Strategy on Students’ Reading *Comprehension* at Grade VIII MTs YPKS Padangsidimpuan in 2014/2015 Academic Year”, Padangsidimpuan IAIN, 2015.

McIntyre, Ellen Nancy Hulan, and Vicky Layne. *Reading Instruction for Diverse Classroom*. New York: The Guilford Press. 2011.

Nunan, David. *Practical English Language Teaching*, First Edition. New York: McGraw Hill Inc. 2003.

Nuttall, Christine Elizabeth. *Teaching Reading Skills in a Foreign Language*. London: Heinemann Educational Books. 1982.

Otong Setiawan, Djuharie. *Genre, Dilengkapi 700 Soal Uji Pemahaman*. Bandung: CV. Yrama Widya. 2007.

\_\_\_\_\_. *Intensive Reading Bottom-Up Reading*. Bandung: CV. Yrama Widya. 2008.

Ogle, D. M., “A Teaching model that develops active reading of expository text”, 1986

Otto, Wayne. *How to Teach Reading*. USA: Wesley Publishing Company. 1979.

- O'Malley, J. Michael and Lorraine Valdez Pierce. *Authentic Assessment for English Language Learners*. America: Addison-Wesley Publishing Company. 1996.
- Otto, Wayne, *How to Teach Reading*, America: Addison Wesley Publishing, 1979.
- Pham, Thihanh. *Learners' and Teachers' Preference for Classroom Activities*. Colchester: Essex University Press. 2005.
- Prime, Andrian, Steps Implementing Teaching Method, Available at <http://materiinside./2014/12/langkah-melaksanakan-metode-ceramah.html>, (Accessed on January, 20, 2017 at 11.00 am)
- Rahayu, Minto, *Bahasa Indonesia di Perguruan Tinggi*, Jakarta: Grasindo, 2007.
- Renandya, Richard A. *Language Teaching Methodology*. Cambridge: Cambridge University. 2006.
- Roehl, K.M. *Developing Reading Comprehension Skill in EFL University Level Student*. Taiwan: St. John's University. 2003.
- Syaiful Bahri, Djamarah. *Strategy Belajar-Mengajar*. Jakarta: PT. Asdi Mahasatya. 2006.
- Suharsimi, Arikunto. *Dasar-dasar Evaluasi Pendidikan, Edisi 2*. Jakarta: Bumi Aksara. 2012.
- \_\_\_\_\_. *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT. Rineka Cipta. 2006.
- Sugiyono. *Metode Penelitian Pendidikan; Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta. 2008.
- Tarigan, Henry Guntur. *Membaca Sebagai Keterampilan Berbahasa*. Bandung: Aksara. 1990.
- Th. M., Sudarwati. and Eudia Grace. *Look Ahead Book 2; An English Course for Senior High School Students Year XI*. Jakarta: Erlangga. 2007.

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>., on April, 27<sup>th</sup> 2017 at 09.05 a.m.

Vanderstoep, Scott W. and Deirdre D. Johnston. *Research Methods for Everyday Life: Blending Qualitative and Quantitative Approaches*. San Fransisco: Jossey Bass. 2009.

Victoria Bull, *Oxford Dictionary*, New York: University Press 2008.

Virginia, *Reading Strategies for Content Area Teachers*, Department of Educational 2004.

Wadsworth. *Assessment: In Special and Inclusive Education, Eleventh Edition*. USA: Cengage Learning Press. 2010.

Weir, Cyrill J. *Communicative Language Testing*. New York: Prentice Hall. 1990.

Westwood, Peter. *Reading and Learning Difficulties: Approach to Teaching and Assessment*. Australia: National Library of Australia. 2001.

## **CURRICULUM VITAE**

### **A. Identity**

Name : Robiatul Adawiyah Hasibuan  
Reg. No. : 12 340 0067  
Place/Birth : Hasahatan Jae/October, 23<sup>th</sup> 1993  
Sex : Female  
Religion : Islam  
Address : Hasahatan Jae, Kec. Barumun, Kab. Padang Lawas

### **B. Parents**

Father's Name : Pangihutan Hasibuan  
Mother's Name : Masliani Lubis

### **C. Educational Background**

1. Elementary School : SD Negeri Hasahatan Jae (2006)
2. Junior High School : MTs N Sibuhuan (2009)
3. Senior High School : SMA N 1 Barumun (2012)
4. Institute : IAIN Padangsidimpuan (2018)

## Appendix I

### Experimental Class

#### RENCANA PELAKSANAAN PEMBELAJARAN (RPP)

Nama Sekolah : SMA N 1 Barumun  
Mata Pelajaran : Bahasa Inggris  
Kelas/Semester : XI IPA 1 / I (ganjil)  
Alokasi Waktu : 4 x 45 menit (2 x Pertemuan)

---

**Standar Kompetensi** :Memahami makna dalam esei pendek sederhana berbentuk expository untuk berinteraksi dengan lingkungan sekitar.

**Kompetensi Dasar** :Memahami makna teks tulis fungsional pendek sederhana secara akurat, lancar, dan berterima yang berkaitan dengan lingkungan sekitar dalam teks expository.

Jenis teks : Expository Text

Aspek/Skill :Membaca

#### **Indikator:**

1. Membaca dan memahami teks expository
2. Mengidentifikasi topik dalam teks expository
3. Mengidentifikasi ide pokok dalam teks expository
4. Memahami informasi yang penting dalam teks expository
5. Memahami kosa kata yang terdapat dalam esei pendek berbentuk expository
6. Menyimpulkan informasi yang terdapat dalam teks expository
7. Menjawab pertanyaan berdasarkan informasi yang ada dalam esei pendek berbentuk expository

#### **Tujuan Pembelajaran:**

1. Siswa mampu membaca dan memahami teks expository
2. Siswa mampu mengidentifikasi topic dalam text expository



3. Siswa mampu mengidentifikasi ide pokok dalam teks expository
4. Siswa mampu memahami informasi yang penting dalam teks expository
5. Siswa mampu memahami kosa kata yang terdapat dalam esei pendek berbentuk expository
6. Menyimpulkan informasi yang terdapat dalam teks expository

**Teknik Pembelajaran :** KWL (know, want to know, learned)

### **Langkah-langkah Pembelajaran**

Kegiatan	Deskripsi Kegiatan	Alokasi Waktu
Pendahuluan	<ol style="list-style-type: none"> <li>1. Greeting/salam</li> <li>2. Guru meminta siswa untuk membuka kelas dengan berdo'a.</li> <li>3. Guru mengabsen siswa.</li> <li>4. Guru menjelaskan materi yang akan dipelajari dan bagaimana peraturan dari <i>kwl (know, want to know, learned)</i></li> </ol>	10 menit
Kegiatan Inti	<ol style="list-style-type: none"> <li>1. Guru memperkenalkan sebuah topic materi yang akan dipelajari</li> <li>2. Guru meminta siswa mengingat kembali apa yang telah mereka ketahui tentang topic tersebut, dengan memberikan pertanyaan: Apa yang kamu ketahui tentang ....? Masing-masing pendapat dari siswa ditulis dikolom Know (K)</li> <li>3. Guru menggali apa yang ingin diketahui siswa dari topic tersebut, dengan meminta siswa untuk membuat beberapa pertanyaan</li> <li>4. Guru memberikan beberapa kata kunci yang sesuai dengan indicator yang ada pada silabus. Yang mana kata kunci tersebut digunakan sebagai acuan untuk membuat pertanyaan</li> <li>5. Guru terlebih dahulu memberikan sebuah contoh pertanyaan kepada siswa, misalnya: Apa fungsi dari ...?</li> </ol>	70 menit

Masing-masing pertanyaan dari siswa ditulis dikolom Want (W)

Siswa diberi waktu di dalam kelas untuk membaca dan berdiskusi dengan kelompoknya untuk mencari jawaban dari pertanyaan yang ditulis dikolom Want (W)

6. Guru meminta masing-masing kelompok untuk mengemukakan jawabannya dan dituliskan dikolom Learn (L).

Penutup

1. Guru membuat kesimpulan pelajaran.
2. Guru meminta siswa mengakhiri kelas dengan berdo'a.
3. Salam

10 menit

#### Alat/Sumber Belajar:

1. Buku yang relevan
2. Kamus
3. Papan tulis
4. Spidol
5. Penghapus

#### Penilaian

No	Indicators	Teknik Penilaian	Bentuk Instrument	Instrument Soal
1	<b>Able</b> to identify generic structure/characteristic of the text.	Tes tertulis	Selected a, b, c and d from reading task	Multiple choices test.
2	Able to find the topic of the text.			
3	Able to identify main idea.			

4	Able to identify the important information from the text.			
5	Able to identify vocabulary.			
6	Able to identify the conclusion			

:

1. Jumlah skor maksimal keseluruhan adalah 100.
2. Jawaban benar diberi skor 5 dan jawaban salah diberi skor 0. Jumlah skor keseluruhan  $5 \times 20 = 100$ .
3. Nilai maksimal =  $\frac{\text{Jumlah jawaban yang benar}}{\text{Jumlah soal}}$

Validator

Researcher

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

NIP. 19790815 200604 1 003

**Robiatul Adawiyah Hasibuan**

Nim. 12 340 0067

## Learning Material

### The Description of a Traditional Houses of Toraja

**Group :**

**Name :**

**Topic :**

<b>K</b>	<b>W</b>	<b>L</b>
<b>What I know</b>	<b>What I want to know</b>	<b>What I learned</b>

### **Example of Expository Text**

The Houses of the Toraja The ethnic groups in the mountain regions of southwest and central Sulawesi (Celebes) are known by the name of Toraja, which has come to mean "those who live upstream" or "those who live in the mountains". Their name is in fact derived from the word Raja, which in Sanskrit means "king".

The society is hierarchically structured: the noblemen are called *rengnge*, the ordinary people to *makaka*, and the slaves to *kaunan*; birth determines which rank a person will occupy. The distinctive features of the traditional houses (*tongkonan*) of the Toraja are the "buffalo horns", the roof design and the rich decoration on the walls.

The buffalo is a symbol of status, courage, strength and fighting spirit. Designed as a representation on the universe, the *tongkonan* is constructed in three parts: the upper world (the roof), the world of humans (the middle of the building), and the underworld (the space under the floor). The highly distinctive roofs constructed by the Toraja given rise to various ingenious interpretations. Certainly the roof is something of deep significance for the Toraja, and even today they build "modern" (in other words houses built with cement) houses with such roofs.

## Appendix 2

### Control Class

#### RENCANA PELAKSANAAN PEMBELAJARAN (RPP)

Nama Sekolah : SMA N 1 Barumun  
Mata Pelajaran : Bahasa Inggris  
Kelas/Semester : XI IPA 2 / I (ganjil)  
Alokasi Waktu : 4 x 45 menit (2 x Pertemuan)

---

**Standar Kompetensi** :Memahami makna dalam esei pendek sederhana berbentuk expository untuk berinteraksi dengan lingkungan sekitar.

**Kompetensi Dasar** :Memahami makna teks tulis fungsional pendek sederhana secara akurat, lancar, dan berterima yang berkaitan dengan lingkungan sekitar dalam teks expository.

Jenis teks : Expository Text

Aspek/Skill : Membaca

#### **Indikator:**

1. Membaca dan memahami teks expository
2. Mengidentifikasi topik dalam teks expository
3. Mengidentifikasi ide pokok dalam teks expository
4. Memahami informasi yang penting dalam teks expository
5. Memahami kosa kata yang terdapat dalam esei pendek berbentuk expository
6. Menyimpulkan informasi yang terdapat dalam teks expository
7. Menjawab pertanyaan berdasarkan informasi yang ada dalam esei pendek berbentuk expository

#### **Tujuan Pembelajaran:**

1. Siswa mampu membaca dan memahami teks expository
2. Siswa mampu mengidentifikasi topic dalam text expository

3. Siswa mampu mengidentifikasi ide pokok dalam teks expository
4. Siswa mampu memahami informasi yang penting dalam teks expository
5. Siswa mampu memahami kosa kata yang terdapat dalam esei pendek berbentuk expository
6. Menyimpulkan informasi yang terdapat dalam teks expository

**Materi Pembelajaran :** Expository text

**Teknik Pembelajaran :** Conventional Strategy

**Langkah-langkah Pembelajaran**

Kegiatan	Deskripsi Kegiatan	Alokasi Waktu
Pendahuluan	<ol style="list-style-type: none"> <li>1. Greeting/salam</li> <li>2. Guru meminta siswa untuk membuka kelas dengan berdo'a.</li> <li>3. Guru mengabsen siswa.</li> <li>4. Guru menjelaskan secara ringkas tentang materi yang akan dipelajari.</li> </ol>	10 menit
Kegiatan Inti	<ol style="list-style-type: none"> <li>1. Guru menyajikan pelajaran.</li> <li>2. Siswa praktek untuk menemukan topic, main idea, mengidentifikasi informasi yang dibutuhkan, memberi kesimpulan, dan memahami vocabulary dari sebuah text.</li> </ol>	70 menit
Penutup	<ol style="list-style-type: none"> <li>1. Guru membuat kesimpulan pelajaran.</li> <li>2. Guru meminta siswa mengakhiri kelas dengan berdo'a.</li> <li>3. Salam</li> </ol>	10 menit

**Alat/Sumber Belajar:**

1. Buku yang relevan
2. Kamus
3. Papan tulis

4. Spidol
5. Penghapus.

**Penilaian :**

No	Indicators	Teknik Penilaian	Bentuk Instrument	Instrument Soal
1	<b>Able</b> to identify generic structure/characteristic of the text.	Tes tertulis	Selected a, b, c and d from reading task	Multiple choices test.
2	Able to find the topic sentences of the ext.			
3	Able to identify main idea.			
4	Able to identify the important information from the text.			
5	Able to identify vocabulary.			
6	Able to identify the conclusion			

:

1. Jumlah skor maksimal keseluruhan adalah 100.
2. Jawaban benar diberi skor 5 dan jawaban salah diberi skor 0. Jumlah skor keseluruhan  $5 \times 20 = 100$ .
3. Nilai maksimal =  $\frac{\text{Jumlah jawaban yang benar}}{\text{Jumlah soal}}$

Mengetahui

English Teacher

Researcher

**Anggun Sasmita Siagian, S.Pd**  
NIP.

**Robiatul Adawiyah Hasibuan**  
Nim. 12 340 0067



### Appendix 3

#### Instrument for Pre-Test

Name :

Class :

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

***Question 1-23: this text below is for question number 1 up 23. Choose the best answer based on the text!***

While everyone agrees that it takes a family to raise a child, the combined efforts of various institutions and organizations to find a home for orphaned and separated Acehnese children have yet to receive the attention they need.

The government, international relief organizations and foreign, and local nongovernmental organizations (NGO) came to an almost unanimous decision that removing the children from their hometowns for adoption or orphanages is not an option.

However, the still as yet unfounded, but sensitive issues of child abduction and trafficking have been a stumbling block in their work.

Syaiful Amri, the coordinator of a youth group network called Lost Children Operation! In Banda Aceh – the capital of Nanggroe Aceh Darussalam and the city worst hit by the disaster – said their efforts to locate children living with neighbours of family friends was relatively smoother, because they spoke the same language.

“When we try to gather data on how many children survived, the people tend to shut down all access. We have to approach the neighbor-hood chief or local religious leaders to explain our intentions before they will take us to the children,” he said.

“Besides, many of the families who have taken in (orphaned or separated) children lost their own children to the tsunami. They just want to be a whole family again without much fanfare or publicity,” Syaiful added.

1. What is the topic of the text?
  - a. Government
  - b. Acehnese children
  - c. International relief
  - d. Organizations and foreign
2. What the main idea the fifth paragraph?
  - a. While everyone agrees that it takes a family to raise a child.
  - b. The government, international relief organizations foreign.
  - c. When we try to gather data on how many children survived, the people tend to shut down all access.
  - d. Many of the families who have taken in (orphaned or separated) children lost their own children to the tsunami.

3. What do the Acehnese children need?
  - a. Yet to receive the attention
  - b. Orphaned and separated
  - c. The still as yet unfounded
  - d. The people tend to shut down all access
4. What has been the stumbling block of NGO and the government?
  - a. They spoke the same language
  - b. They will take us to the children
  - c. The people tend to shut down all access
  - d. The still as yet unfounded, but sensitive issues of child abduction and trafficking
5. Who is Syaiful Amri?
  - a. The coordinator of a youth group network called lost children operation.
  - b. The capital of Nanggroe Aceh Darussalam.
  - c. The city worst hit by the disaster.
  - d. The still as yet unfounded.
6. What the generic structure the first paragraph?
  - a. Thesis
  - b. Argument
  - c. Orientation
  - d. Reiteration
7. What the generic structure the third paragraph?
  - a. Argument
  - b. Thesis
  - c. Event
  - d. Reiteration
8. What the generic structure the fourth paragraph?
  - a. Reiteration
  - b. Argument
  - c. Thesis
  - d. Event
9. They....take us to the children...
  - a. Shall
  - b. Will
  - c. Should
  - d. Would
10. The word “much fanfare” (in sixth paragraph),  
Underline word antonym with...
  - a. Little
  - b. Any
  - c. A few
  - d. Some
11. The word “same language” (in fourth paragraph),  
Underlined word antonym with...
  - a. Differences
  - b. Different
  - c. Same
  - d. Difficult

12. The word “before they” (in fifth paragraph),  
Underlined word antonym, with...
- a. Meanwhile                      c. Suddenly
  - b. Furthermore                  d. After
13. Why was Syaiful Amri successful in locating Acehnese children?
- a. Because they spoke the same language.
  - b. Because they will take us to the children.
  - c. Because children living with neighbours.
  - d. Because children living with family friends.
14. “The adoption and orphanages of children”. In which paragraph do you find this idea?
- a. First paragraph                      c. Third paragraph
  - b. Second paragraph                  d. Fourth paragraph
15. What type of text is used by the writer in the story above?
- a. Descriptive text                      c. Expository text
  - b. Narrative text                          d. Report text
16. Child abduction and trafficking....a stumbling block in their work.
- a. Were                      c. Is
  - b. Was                      d. Have been
17. Children lost....own children to the tsunami.
- a. Them                      c. They
  - b. Their                      d. We
18. We....to approach the neighbor hood chief.
- a. Have                      c. Had
  - b. Has                      d. Were
19. The word “to find a home”, the underlined word synonym with?
- a. Home                      c. Houses
  - b. Building                      d. House
20. What the conclusion of the text above?
- a. They just want to be a whole family again without much fanfare or publicity, Syaiful added.
  - b. We have to approach the neighbour- hood chief.
  - c. Family friends was relatively smoother, because they spoke the same language.
  - d. The children from their hometowns for adoption or orphanages is not an option.

21. What does paragraph 2 tell us about?
  - a. Children operation
  - b. Acehnese children
  - c. Adoption or orphanages children
  - d. Orphaned or separated children
22. Which paragraph talk about orphaned or separated children?
  - a. First paragraph
  - b. Second paragraph
  - c. Fourth paragraph
  - d. Sixth paragraph
23. What the main idea the fourth paragraph?
  - a. While everyone agrees that it takes a family to raise a child.
  - b. Syaiful Amri, the coordinator of a youth group network called lost children operation.
  - c. The government, international relief organizations and foreign.
  - d. Besides, many of the families who have taken in (orphaned or separated) children lost their own children to the tsunami.

***Question 24-41: this text below is for question number 24 up 41. Choose the best answer based on the text!***

Working in the hospital is not always enjoyable. Some days nothing goes right and then it is very frustrating.

Working with older people is much more difficult. They take much longer to get better. A lot of the older patients do not want to leave hospital at all. They feel safe there and they have lots of friends. When they go home they feel very lonely. They miss their friends. Sometimes nurses go and visit them at home when they can. But it's hard to get the time. It causes that some of them will never really get well again. Every nurse feels sorry for them but they cannot show them how they feel. They have to be cheerful and do what they can. Nurses always try to do their best for all patients.

Thus nurses should be creative to develop amusing and enjoyable environment in order to help patients recover from illness.

24. What is the topic of the text?
  - a. Working in the hospital
  - b. Working with older people
  - c. Nurses should be creative
  - d. Working always enjoyable
25. The main idea of paragraph 1?
  - a. Working in the hospital is not always enjoyable.
  - b. Working with older people is much more difficult.
  - c. They miss their friends.
  - d. They have to be cheerful.

26. But...hard to get the time?
- It
  - It's
  - Is
  - It is
27. What is the purpose of the text?
- To advice readers to be careful with their illness.
  - To persuade readers how to be a good nurse.
  - To inform readers how to be a nurse.
  - To describe a nurse's job.
28. When nurses are on duty, they sometimes feel frustrated because....
- They feel very lonely all the time.
  - They always work with older people.
  - They should do their best at all times.
  - They have to visit their parents.
29. What is the problem faced by nurses?
- Older patients feel happy in the hospital.
  - These older patients have lots of friends.
  - A lot of older patients feel safe in the hospital.
  - Nurses are asked to go and visit the patients at home.
30. They feel safe there and they have lots of friends. (in second paragraph).  
What does they refer to?
- Nurses
  - Older people
  - The patients
  - The doctors
31. They have to be cheerful and do what they can.  
The synonym of underlined words is....
- Happy
  - Sad
  - Satisfied
  - Regret
32. The word "older patients" (in the second paragraph), the underline word antonym with?
- Young
  - Younger
  - Child
  - Beautiful
33. The word "goes right" (in the first paragraph), the underline word antonym with?
- Bad
  - Wrong
  - Mistake
  - Well
34. They...lots of friends.
- Had
  - Has
  - Have
  - Were

35. The main idea the second paragraph?
- Working in the hospital is not always enjoyable.
  - Working with older people is much more difficult.
  - They miss their friends.
  - They have to be cheerful.
36. A lots of friends (in the second paragraph), the underline words antonym with?
- Much
  - Larger
  - Some
  - Many
37. At home when they can (in the second paragraph), the underline word synonym with?
- House
  - Houses
  - Homes
  - Building
38. What is the conclusion of the text?
- To develop amusing and enjoyable environment in order to help patients recorver from illness.
  - Nurses always try to do their best for all patients.
  - They miss their friends.
  - Some days nothing goes right and then it is very frustrating.
39. What is the generic structure the text about?
- Identification-description
  - Thesis-arguments-reiteration
  - General classification-description
  - Orientation-event-reorientation
40. Working in the hospital is not always enjoyable.  
What is the tenses of the sentence?
- Simple present tense
  - Simple perfect tense
  - Simple present continuous tense
  - Past tense
41. What is the generic structure from the second paragraph?
- Event
  - Thesis
  - Reiteration
  - Argument

***Question 42-50: this text below is for question number 42 up 50. Choose the best answer based on the text!***

As we all know smoking should be banned in public areas. It creates pollution and causes many kinds of disease. These are, among others, lung cancer, heart disease, stroke, chronic bronchitis emphysema and breast cancer for women.

There are many side effects of smoking cigarettes. Firstly, smoking presents a hazard to health. Smoke from the average cigarette contains around 4,000 chemicals, some of which are highly toxic and at least 43 which cause cancer.

Secondly, nicotine, a major constituent of tobacco smoke, is both poisonous and highly addictive. It contains noxious chemical substances, which can damage our health.

Thirdly, smoking makes the environment dirty, especially because of its ash. If inhaled, we will suffer from coughs, difficult breathing, or asthmatic diseases.

In conclusion, smoking should be banned in public areas.

42. What is the topic of the text?
  - a. Smoking should be banned in public areas.
  - b. Lung cancer
  - c. Heart disease
  - d. Stroke
43. The first paragraph tell us about....
  - a. Smoking presents a hazard to health.
  - b. As we all know smoking should be banned in public areas.
  - c. Nicotine, a major constituent of tobacco smoke, is both poisonous and highly addictive.
  - d. Smoking makes the environment dirty, especially because of its ash.
44. What the main idea the second paragraph?
  - a. As we all know smoking should be banned in public areas.
  - b. Nicotine, a major constituent of tobacco smoke.
  - c. There are many side effects of smoking cigarettes.
  - d. Smoking makes the environment dirty.
45. What the generic structure the first paragraph?
  - a. Thesis                      c. Reiteration
  - b. Arguments                d. Orientation
46. There...many side effects of smoking cigarettes?
  - a. Are                      c. Am
  - b. Is                        d. It
47. The word "high" (in third paragraph)  
The underlined word synonym with...
  - a. Small                      c. Soft
  - b. Tall                        d. Fat
48. How many chemicals does smoke from the average cigarette contain?
  - a. 4,300 chemicals                      c. 4, 200 chemicals
  - b. 4,000 chemicals                      d. 4, 500 chemicals

49. Why should smoking be banned in public areas?
- a. It contains noxious chemical substances, which can damage our hearth.
  - b. It suffer from coughs, difficult breathing, or asthmatic diseases.
  - c. It creats pollution and causes many kinds of disease.
  - d. Some of which are highly toxic and at least 43 which cause cancer.
50. What is the conclusion of the text?
- a. These are, among others, lung cancer heart disease, stroke, chronic bronchitis emphysema and breast cancer for women.
  - b. It contains noxious chemical substances, which can damage our health.
  - c. If inhaled, we will suffer from coughs, difficult breathing, or asthmatic diseases.
  - d. Smoking should be banned in public areas.

Validator

**Anggun Sasmita Siagian, S.Pd**



## Appendix 4

### Instrument for Post-Test

Name :

Class :

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

***Question 1-18: this text below is for question number 1 up 18. Choose the best answer based on the text!***

Working in the hospital is not always enjoyable. Some days nothing goes right and then it is very frustrating.

Working with older people is much more difficult. They take much longer to get better. A lot of the older patients do not want to leave hospital at all. They feel safe there and they have lots of friends. When they go home they feel very lonely. They miss their friends. Sometimes nurses go and visit them at home when they can. But it's hard to get the time. It causes that some of them will never really get well again. Every nurse feels sorry for them but they cannot show them how they feel. They have to be cheerful and do what they can. Nurses always try to do their best for all patients.

Thus nurses should be creative to develop amusing and enjoyable environment in order to help patients recover from illness.

1. What is the topic of the text?
  - a. Working in the hospital
  - b. Working with older people
  - c. Nurses should be creative
  - d. Working always enjoyable
2. The main idea of paragraph 1?
  - a. Working in the hospital is not always enjoyable.
  - b. Working with older people is much more difficult.
  - c. They miss their friends.
  - d. They have to be cheerful.
3. But...hard to get the time?
  - a. It
  - b. It's
  - c. Is
  - d. It is
4. What is the purpose of the text?
  - a. To advice readers to be careful with their illness.
  - b. To persuade readers how to be a good nurse.
  - c. To inform readers how to be a nurse.
  - d. To describe a nurse's job.
5. When nurses are on duty, they sometimes feel frustrated because....
  - a. They feel very lonely all the time.
  - b. They always work with older people.

- c. They should do their best at all times.
  - d. They have to visit their parents.
6. What is the problem faced by nurses?
- a. Older patients feel happy in the hospital.
  - b. These older patients have lots of friends.
  - c. A lot of older patients feel safe in the hospital.
  - d. Nurses are asked to go and visit the patients at home.
7. They feel safe there and they have lots of friends. (in second paragraph).  
What does they refer to?
- a. Nurses                      c. The patients
  - b. Older people              d. The doctors
8. They have to be cheerful and do what they can.  
The synonym of underlined words is....
- a. Happy                      c. Satisfied
  - b. Sad                          d. Regret
9. The word “older patients” (in the second paragraph), the underline word antonym with?
- a. Young                      c. Child
  - b. Younger                      d. Beautiful
10. The word “goes right” (in the first paragraph), the underline word antonym with?
- a. Bad                          c. Mistake
  - b. Wrong                      d. Well
11. They...lots of friends.
- a. Had                          c. Have
  - b. Has                          d. Were
12. The main idea the second paragraph?
- a. Working in the hospital is not always enjoyable.
  - b. Working with older people is much more difficult.
  - c. They miss their friends.
  - d. They have to be cheerful.
13. A lots of friends (in the second paragraph), the underline words antonym with?
- a. Much                      c. Some
  - b. Larger                      d. Many
14. At home when they can (in the second paragraph), the underline word synonym with?
- a. House                      c. Homes
  - b. Houses                      d. Building

15. What is the conclusion of the text?
  - a. To develop amusing and enjoyable environment in order to help patients recover from illness.
  - b. Nurses always try to do their best for all patients.
  - c. They miss their friends.
  - d. Some days nothing goes right and then it is very frustrating.
16. What is the generic structure the text about?
  - a. Identification-description
  - b. Thesis-arguments-reiteration
  - c. General classification-description
  - d. Orientation-event-reorientation
17. Working in the hospital is not always enjoyable.  
What is the tenses of the sentence?
  - a. Simple present tense
  - b. Simple perfect tense
  - c. Simple present continuous tense
  - d. Past tense
18. What is the generic structure from the second paragraph?
  - a. Event
  - b. Thesis
  - c. Reiteration
  - d. Argument

***Question 19-38: this text below is for question number 19 up 38. Choose the best answer based on the text!***

I am writing in response to Nick Hogan's defiant stance regarding the smoking ban and some of the letters sent in supporting him and/or denouncing the ban as unfair.

I cannot believe how many people keep spouting on about how the ban is breaching 'human right'. Since when did smoking itself become a human rights? Human rights, especially to do with liberties, are freedoms in areas such as beliefs, religion or expression. It is legal to smoke, but I would have never called it a 'right'.

The ban is protecting human rights not infringing them, supporting the right of workers to work in a clean, healthy, smoke-free environment. People against the ban seem to have forgotten that this is the main reason it has been introduced.

Nobody complained about smoking bans in offices, but because bars and pubs happen to be places of leisure as well as places of work, they are now up in arms.

Bolton Council needs to get some backbone, support the new legislation and those abiding by it, and prosecute irresponsible landlords like Nick Hogan.

19. What is the topic of the text?
  - a. Smoking is not a human rights
  - b. Human rights

- c. The ban is protecting human rights
  - d. Nobody complained about smoking bans
20. What is the main idea the third paragraph?
- a. I cannot believe how many people keep spouting on about how the ban is breaching human rights.
  - b. The ban is protecting human rights not infringing them, supporting the right of workers to work in a clean, healthy, smoke-free environment.
  - c. I am writing in response to Nick Hogans defiant stance regarding.
  - d. Nobody complained about smoking bans in offices.
21. Why do people are now up in arm for smoking in bars or pubs?
- a. Because happen to be places of leisure as well as places of work.
  - b. Because nobody complained about smoking bans in offices.
  - c. Because they are now up in arms.
  - d. Because human rights not infringing them.
22. Who is againts the smoking ban?
- a. Smoker
  - b. Smoke-free environment
  - c. People
  - d. Workers
23. What is the human right concern with?
- a. Beliefs
  - b. Religion
  - c. Expression
  - d. Liberties
24. The ban....protecting human rights not infringing them!
- a. Am
  - b. Was
  - c. Were
  - d. Is
25. They.....now up in arms!
- a. Are
  - b. Is
  - c. Am
  - d. Was
26. I....writing in response to Nick Hogan's.
- a. Is
  - b. Am
  - c. Are
  - d. Were
27. The word people synonym with?
- a. Woman
  - b. Man
  - c. Person
  - d. Society
28. The word right antonym with?
- a. Mistake
  - b. Bad
  - c. Well
  - d. Wrong
29. What is the main idea the second paragraph?
- a. I am writing in response to Nick Hogan's defiant stance regarding.
  - b. I cannot believe how many people keep spouting on about how the ban is breaching human right.

- c. The ban is protecting human rights not infringing them.
  - d. Nobody complained about smoking bans in offices.
30. What is the main idea the fourth paragraph?
- a. I cannot believe how many people keep spouting on about how the ban is breaching human right.
  - b. The ban is protecting human rights not infringing them.
  - c. Nobody complained about smoking bans in offices.
  - d. I am writing in response to Nick Hogan's defiant stance regarding.
31. What is the synonym the some?
- a. Many            c. Any
  - b. An                d. Several
32. The main reason it.....introduced.
- a. Has been            c. Had
  - b. Have been        d. Have
33. The ban....breaching 'human right'.
- a. Am            c. Are
  - b. Is             d. Were
34. What is the conclusion from the text?
- a. It is legal to smoke, but I would have never called it a 'right'.
  - b. Bolton Council needs to get some backbone, support the new legislation and those abiding by it, and prosecute irresponsible landlords like Nick Hogan.
  - c. People against the ban seem to have forgotten that this is the main reason it has been introduced.
  - d. They are now up in arms.
35. What is the generic structure the text above?
- a. Thesis-arguments-reiteration.
  - b. Identification-description.
  - c. Issue-arguments-conclusion.
  - d. General classification-description.
36. I.....never called it a 'right'.
- a. Would have            c. Should
  - b. Should have        d. Would
37. What is the generic structure of the paragraph 2?
- a. Events            c. Arguments
  - b. Thesis            d. Reiteration
38. What is the generic structure of the paragraph 5?
- a. Description        c. Arguments
  - b. Thesis             d. Reiteration

***Question 39-50: this text below is for question number 39 up 50. Choose the best answer based on the text!***

As we all know smoking should be banned in public areas. It creates pollution and causes many kinds of disease. These are, among others, lung cancer, heart disease, stroke, chronic bronchitis emphysema and breast cancer for women.

There are many side effects of smoking cigarettes. Firstly, smoking presents a hazard to health. Smoke from the average cigarette contains around 4,000 chemicals, some of which are highly toxic and at least 43 which cause cancer.

Secondly, nicotine, a major constituent of tobacco smoke, is both poisonous and highly addictive. It contains noxious chemical substances, which can damage our health.

Thirdly, smoking makes the environment dirty, especially because of its ash. If inhaled, we will suffer from coughs, difficult breathing, or asthmatic diseases.

In conclusion, smoking should be banned in public areas.

39. What is the topic of the text?
  - a. Smoking should be banned in public areas.
  - b. Lung cancer
  - c. Heart disease
  - d. Stroke
40. The first paragraph tell us about....
  - a. Smoking presents a hazard to health.
  - b. As we all know smoking should be banned in public areas.
  - c. Nicotine, a major constituent of tobacco smoke, is both poisonous and highly addictive.
  - d. Smoking makes the environment dirty, especially because of its ash.
41. What the main idea the second paragraph?
  - a. As we all know smoking should be banned in public areas.
  - b. Nicotine, a major constituent of tobacco smoke.
  - c. There are many side effects of smoking cigarettes.
  - d. Smoking makes the environment dirty.
42. What the generic structure the first paragraph?
  - a. Thesis
  - b. Arguments
  - c. Reiteration
  - d. Orientation
43. What the generic structure the third paragraph?
  - a. Thesis
  - b. Arguments
  - c. Reiteration
  - d. Orientation
44. What the generic structure the fifth paragraph?
  - a. Thesis
  - b. Arguments
  - c. Reiteration
  - d. Description

45. There...many side effects of smoking cigarettes?
- a. Are            c. Am
  - b. Is            d. It
46. The word “kinds” (in first paragraph),  
The underline word synonym with....
- a. Adjective            c. Clouds
  - b. Characteristic      d. Types
47. The word “high” (in third paragraph)  
The underlined word synonym with...
- a. Small            c. Soft
  - b. Tall            d. Fat
48. How many chemicals does smoke from the average cigarette contain?
- a. 4,300 chemicals            c. 4, 200 chemicals
  - b. 4,000 chemicals            d. 4, 500 chemicals
49. Why should smoking be banned in public areas?
- a. It contains noxious chemical substances, which can damage our hearth.
  - b. It suffer from coughs, difficult breathing, or asthmatic diseases.
  - c. It creats pollution and causes many kinds of disease.
  - d. Some of which are highly toxic and at least 43 which cause cancer.
50. What is the conclusion of the text?
- a. These are, among others, lung cancer heart disease, stroke, chronic bronchitis emphysema and breast cancer for women.
  - b. It contains noxious chemical substances, which can damage our health.
  - c. If inhaled, we will suffer from coughs, difficult breathing, or asthmatic diseases.
  - d. Smoking should be banned in public areas.

Validator

**Anggun Sasmita Siagian, S.Pd**

## Appendix 5

### ANSWER KEY

#### PRE TEST

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

#### POST TEST

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



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		
1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	0	0	1	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	1	0	1	0	1	0	0	1	1	1	1	0	0	0	0
3	0	0	0	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	1	1	
4	1	1	0	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	1	0	1	1	1
5	1	1	0	1	0	1	0	1	1	1	1	0	1	0	1	0	1	0	0	1	0	0	1	1	1	0	1	0	0	0	1	1	1	0	0	1	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	1	1
7	1	1	0	1	1	1	0	1	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	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	0	
10	0	1	1	0	0	1	0	1	1	1	1	0	1	0	0	1	1	0	1	0	1	1	1	1	1	1	0	0	1	1	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	1	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0
12	0	1	0	1	0	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	1	0	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	1	1	1	0	1	1	1	1	0	0	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	0	1	1	1	1	1	0	0	1	0	1	1	1	1	1	0	0	1
15	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	0	1	1	1	1	1	1	0	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	1	
17	1	1	0	1	1	0	1	0	1	0	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	1	0	1	1	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	0	0	1	1	1	0	1	1	1	1	0	0	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	1	1
20	1	1	1	1	1	1	1	0	0	0	1	0	0	1	1	1	1	0	0	1	0	1	1	1	1	0	1	0	0	0	1	1	1	0	0	1	0	1	0	0	1	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	1	0	1	1	0	1	0	1	0	1	1	0	1	0	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	0	1	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	0	1	1	1	0	0	1	0	0	0
N = 23	16	5	6	8	6	6	5	8	5	8	18	8	8	8	9	6	6	5	6	6	5	8	6	8	0	8	8	5	3	4	7	9	7	5	6	8	6	6	6	16		
P	0,7	0,7	0,2	0,8	0,7	0,7	0,7	0,8	0,7	0,8	0,8	0,3	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	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	0,7	0,2	0,3	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	NUMBER OF ITEMS																												Xt	Xt <sup>2</sup>			
	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	
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	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	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	0	1	1	0	0	1	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	0	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	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	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	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	6	8	4	5	4	6	8	5	4	4	4	6	15	14	7	6	18	15	11	4	Σxt = 902	Σxt² = 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  $r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$  in Pre Test

### A. Calculation of Pre-Test

#### 1. Means score from score total ( $M_t$ )

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

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

#### 2. Standard Deviation ( $SD_t$ )

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

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

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

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

#### 3. Means Score ( $M_p$ )

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\begin{aligned}\text{Item 6 } M_{p6} &= \frac{\text{the total of students score that answer true item}}{n6} \\ M_{p6} &= \frac{46+37+45+47+30+46+48+51+37+41+48+37+34+36+43+34}{16} \\ M_{p6} &= \frac{660}{16} = 41.25\end{aligned}$$

$$\begin{aligned}\text{Item 7 } M_{p7} &= \frac{\text{the total of students score that answer true item}}{n7} \\ M_{p7} &= \frac{45+47+46+51+37+48+37+42+34+37+42+43+34+39+34}{15} \\ M_{p7} &= \frac{616}{15} = 41.06\end{aligned}$$

$$\begin{aligned}\text{Item 8 } M_{p8} &= \frac{\text{the total of students score that answer true item}}{n8} \\ M_{p8} &= \frac{46+37+45+47+30+46+48+51+37+41+48+37+34+37+36+43+39+34}{18} \\ M_{p8} &= \frac{736}{18} = 40.88\end{aligned}$$

$$\begin{aligned}\text{Item 9 } M_{p9} &= \frac{\text{the total of students score that answer true item}}{n9} \\ M_{p9} &= \frac{46+45+47+30+48+51+37+41+48+42+34+37+42+43+34}{15} \\ M_{p9} &= \frac{625}{15} = 41.66\end{aligned}$$

$$\begin{aligned}\text{Item 10 } M_{p10} &= \frac{\text{the total of students score that answer true item}}{n10} \\ M_{p10} &= \frac{46+37+45+47+30+46+48+51+37+41+48+42+34+37+43+39+34+25}{18} \\ M_{p10} &= \frac{730}{18} = 40.56\end{aligned}$$

$$\begin{aligned}\text{Item 11 } M_{p11} &= \frac{\text{the total of students score that answer true item}}{n11} \\ M_{p11} &= \frac{46+37+45+47+46+51+37+41+48+42+34+37+42+36+43+34+39+34}{18} \\ M_{p11} &= \frac{739}{18} = 41.05\end{aligned}$$

$$\begin{aligned}\text{Item 12 } M_{p12} &= \frac{46+45+47+30+46+48+51+41+48+37+42+34+42+36+43+39+34+25}{18} \\ M_{p12} &= \frac{734}{18} = 40.77\end{aligned}$$

$$\begin{aligned}\text{Item 13 } M_{p13} &= \frac{46+37+48+42+42+43+34+25}{8} \\ M_{p13} &= \frac{317}{8} = 39.62\end{aligned}$$

$$\begin{aligned}\text{Item 14 } M_{p14} &= \frac{46+37+45+47+30+46+48+51+37+48+37+34+37+42+36+34+39+34+25}{19} \\ M_{p14} &= \frac{773}{19} = 40.68\end{aligned}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$M_{p36} = \frac{729}{18} = 40.5$$

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

$$M_{p37} = \frac{659}{16} = 41.18$$

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

$$M_{p38} = \frac{231}{6} = 38.5$$

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

$$M_{p39} = \frac{657}{16} = 41.06$$

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

$$M_{p40} = \frac{668}{16} = 41.75$$

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

$$M_{p41} = \frac{655}{16} = 40.93$$

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

$$M_{p42} = \frac{623}{15} = 41.53$$

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

$$M_{p43} = \frac{582}{14} = 41.57$$

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

$$M_{p44} = \frac{546}{13} = 42$$

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

$$M_{p45} = \frac{508}{12} = 42.33$$

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

$$M_{p46} = \frac{179}{5} = 35.8$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\begin{aligned}\text{Item 1 } r_{pbi} &= \frac{41.31 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.1}{6.2} \sqrt{2.33} \\ r &= 0.338 \times 1.52 = 0.5137\end{aligned}$$

$$\begin{aligned}\text{Item 2 } r_{pbi} &= \frac{40.93 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.72}{6.2} \sqrt{2.33} \\ r &= 0.277 \times 1.52 = 0.421\end{aligned}$$

$$\begin{aligned}\text{Item 3 } r_{pbi} &= \frac{38.83 - 39.21}{6.2} \sqrt{\frac{0.2}{0.8}} \\ r &= \frac{-0.38}{6.2} \sqrt{0.25} \\ r &= -0.061 \times 0.5 = -0.0305\end{aligned}$$

$$\begin{aligned}\text{Item 4 } r_{pbi} &= \frac{40.72 - 39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.51}{6.2} \sqrt{4} \\ r &= 0.243 \times 2 = 0.486\end{aligned}$$

$$\begin{aligned}\text{Item 5 } r_{pbi} &= \frac{41.37 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.16}{6.2} \sqrt{2.33} \\ r &= 0.348 \times 1.52 = 0.528\end{aligned}$$

$$\begin{aligned}\text{Item 6 } r_{pbi} &= \frac{41.25 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.04}{6.2} \sqrt{2.33} \\ r &= 0.329 \times 1.52 = 0.500\end{aligned}$$

$$\begin{aligned}\text{Item 7 } r_{pbi} &= \frac{41.06 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.85}{6.2} \sqrt{2.33} \\ r &= 0.298 \times 1.52 = 0.452\end{aligned}$$

$$\begin{aligned}\text{Item 8 } r_{pbi} &= \frac{40.88 - 39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.67}{6.2} \sqrt{4}\end{aligned}$$

$$r = 0.269 \times 2 = 0.538$$

$$\begin{aligned}\textbf{Item 9} r_{\text{pbi}} &= \frac{41.66-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.45}{6.2} \sqrt{2.33} \\ r &= 0.395 \times 1.52 = 0.6004\end{aligned}$$

$$\begin{aligned}\textbf{Item 10} r_{\text{pbi}} &= \frac{40.56-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.35}{6.2} \sqrt{4} \\ r &= 0.217 \times 2 = 0.434\end{aligned}$$

$$\begin{aligned}\textbf{Item 11} r_{\text{pbi}} &= \frac{41.05-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.84}{6.2} \sqrt{4} \\ r &= 0.296 \times 2 = 0.592\end{aligned}$$

$$\begin{aligned}\textbf{Item 12} r_{\text{pbi}} &= \frac{40.77-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.56}{6.2} \sqrt{4} \\ r &= 0.251 \times 2 = 0.502\end{aligned}$$

$$\begin{aligned}\textbf{Item 13} r_{\text{pbi}} &= \frac{39.62-39.21}{6.2} \sqrt{\frac{0.3}{0.7}} \\ r &= \frac{0.41}{6.2} \sqrt{0.42} \\ r &= 0.066 \times 0.64 = 0.042\end{aligned}$$

$$\begin{aligned}\textbf{Item 14} r_{\text{pbi}} &= \frac{40.68-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.47}{6.2} \sqrt{4} \\ r &= 0.237 \times 2 = 0.474\end{aligned}$$

$$\begin{aligned}\textbf{Item 15} r_{\text{pbi}} &= \frac{41.56-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.35}{6.2} \sqrt{2.33} \\ r &= 0.379 \times 1.52 = 0.576\end{aligned}$$

$$\begin{aligned}\textbf{Item 16} r_{\text{pbi}} &= \frac{41.43-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.22}{6.2} \sqrt{2.33} \\ r &= 0.358 \times 1.52 = 0.544\end{aligned}$$

$$\begin{aligned}\text{Item 17 } r_{\text{pbi}} &= \frac{41-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.79}{6.2} \sqrt{2.33} \\ r &= 0.288 \times 1.52 = 0.437\end{aligned}$$

$$\begin{aligned}\text{Item 18 } r_{\text{pbi}} &= \frac{37-39.21}{6.2} \sqrt{\frac{0.3}{0.7}} \\ r &= \frac{-2.21}{6.2} \sqrt{0.42} \\ r &= -0.356 \times 0.64 = -0.227\end{aligned}$$

$$\begin{aligned}\text{Item 19 } r_{\text{pbi}} &= \frac{41-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.79}{6.2} \sqrt{2.33} \\ r &= 0.288 \times 1.52 = 0.437\end{aligned}$$

$$\begin{aligned}\text{Item 20 } r_{\text{pbi}} &= \frac{41.31-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.1}{6.2} \sqrt{2.33} \\ r &= 0.338 \times 1.52 = 0.513\end{aligned}$$

$$\begin{aligned}\text{Item 21 } r_{\text{pbi}} &= \frac{41.33-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.12}{6.2} \sqrt{2.33} \\ r &= 0.341 \times 1.52 = 0.518\end{aligned}$$

$$\begin{aligned}\text{Item 22 } r_{\text{pbi}} &= \frac{41.27-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{2.06}{6.2} \sqrt{4} \\ r &= 0.332 \times 2 = 0.664\end{aligned}$$

$$\begin{aligned}\text{Item 23 } r_{\text{pbi}} &= \frac{41.18-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.97}{6.2} \sqrt{2.33} \\ r &= 0.317 \times 1.52 = 0.4818\end{aligned}$$

$$\begin{aligned}\text{Item 24 } r_{\text{pbi}} &= \frac{40.94-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.73}{6.2} \sqrt{4} \\ r &= 0.279 \times 2 = 0.558\end{aligned}$$

$$\begin{aligned}\text{Item 25 } r_{\text{pbi}} &= \frac{40.15 - 39.21}{6.2} \sqrt{\frac{0.9}{0.3}} \\ r &= \frac{0.94}{6.2} \sqrt{9} \\ r &= 0.151 \times 3 = 0.454\end{aligned}$$

$$\begin{aligned}\text{Item 26 } r_{\text{pbi}} &= \frac{40.72 - 39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.51}{6.2} \sqrt{4} \\ r &= 0.243 \times 2 = 0.487\end{aligned}$$

$$\begin{aligned}\text{Item 27 } r_{\text{pbi}} &= \frac{40.61 - 39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.4}{6.2} \sqrt{4} \\ r &= 0.225 \times 2 = 0.45\end{aligned}$$

$$\begin{aligned}\text{Item 28 } r_{\text{pbi}} &= \frac{38.4 - 39.21}{6.2} \sqrt{\frac{0.2}{0.8}} \\ r &= \frac{-0.81}{6.2} \sqrt{0.25} \\ r &= -0.1306 \times 0.5 = -0.065\end{aligned}$$

$$\begin{aligned}\text{Item 29 } r_{\text{pbi}} &= \frac{43.07 - 39.21}{6.2} \sqrt{\frac{0.6}{0.4}} \\ r &= \frac{3.86}{6.2} \sqrt{1.5} \\ r &= 0.622 \times 1.2 = 0.746\end{aligned}$$

$$\begin{aligned}\text{Item 30 } r_{\text{pbi}} &= \frac{42.42 - 39.21}{6.2} \sqrt{\frac{0.6}{0.4}} \\ r &= \frac{3.21}{6.2} \sqrt{1.5} \\ r &= 0.517 \times 1.2 = 0.621\end{aligned}$$

$$\begin{aligned}\text{Item 31 } r_{\text{pbi}} &= \frac{41.11 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.9}{6.2} \sqrt{2.33} \\ r &= 0.306 \times 1.52 = 0.465\end{aligned}$$

$$\begin{aligned}\text{Item 32 } r_{\text{pbi}} &= \frac{40.31 - 39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.63}{6.2} \sqrt{4} \\ r &= 0.262 \times 2 = 0.524\end{aligned}$$

$$\begin{aligned}\text{Item 33 } r_{\text{pbi}} &= \frac{37.57-39.21}{6.2} \sqrt{\frac{0.3}{0.7}} \\ r &= \frac{-1.638}{6.2} \sqrt{0.42} \\ r &= -0.264 \times 0.64 = -0.168\end{aligned}$$

$$\begin{aligned}\text{Item 34 } r_{\text{pbi}} &= \frac{41-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.79}{6.2} \sqrt{2.33} \\ r &= 0.288 \times 1.52 = 0.4388\end{aligned}$$

$$\begin{aligned}\text{Item 35 } r_{\text{pbi}} &= \frac{41.37-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.16}{6.2} \sqrt{2.33} \\ r &= 0.348 \times 1.52 = 0.529\end{aligned}$$

$$\begin{aligned}\text{Item 36 } r_{\text{pbi}} &= \frac{40.5-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.29}{6.2} \sqrt{4} \\ r &= 0.208 \times 2 = 0.416\end{aligned}$$

$$\begin{aligned}\text{Item 37 } r_{\text{pbi}} &= \frac{41.18-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.97}{6.2} \sqrt{2.33} \\ r &= 0.317 \times 1.52 = 0.4818\end{aligned}$$

$$\begin{aligned}\text{Item 38 } r_{\text{pbi}} &= \frac{38.5-39.21}{6.2} \sqrt{\frac{0.3}{0.7}} \\ r &= \frac{-0.71}{6.2} \sqrt{0.42} \\ r &= -0.114 \times 0.64 = -0.073\end{aligned}$$

$$\begin{aligned}\text{Item 39 } r_{\text{pbi}} &= \frac{41.06-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.85}{6.2} \sqrt{2.33} \\ r &= 0.298 \times 1.52 = 0.4529\end{aligned}$$

$$\begin{aligned}\text{Item 40 } r_{\text{pbi}} &= \frac{41.75-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.54}{6.2} \sqrt{2.33} \\ r &= 0.409 \times 1.52 = 0.621\end{aligned}$$

$$\begin{aligned}\textbf{Item 41} r_{\text{pbi}} &= \frac{40.93-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.72}{6.2} \sqrt{2.33} \\ r &= 0.277 \times 1.52 = 0.421\end{aligned}$$

$$\begin{aligned}\textbf{Item 42} r_{\text{pbi}} &= \frac{41.53-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.32}{6.2} \sqrt{2.33} \\ r &= 0.374 \times 1.52 = 0.568\end{aligned}$$

$$\begin{aligned}\textbf{Item 43} r_{\text{pbi}} &= \frac{41.57-39.21}{6.2} \sqrt{\frac{0.6}{0.4}} \\ r &= \frac{3.36}{6.2} \sqrt{1.5} \\ r &= 0.380 \times 1.2 = 0.456\end{aligned}$$

$$\begin{aligned}\textbf{Item 44} r_{\text{pbi}} &= \frac{42-39.21}{6.2} \sqrt{\frac{0.5}{0.5}} \\ r &= \frac{2.79}{6.2} \sqrt{1} \\ r &= 0.45 \times 1 = 0.45\end{aligned}$$

$$\begin{aligned}\textbf{Item 45} r_{\text{pbi}} &= \frac{42.33-39.21}{6.2} \sqrt{\frac{0.5}{0.5}} \\ r &= \frac{3.12}{6.2} \sqrt{1} \\ r &= 0.503 \times 1 = 0.503\end{aligned}$$

$$\begin{aligned}\textbf{Item 46} r_{\text{pbi}} &= \frac{35.8-39.21}{6.2} \sqrt{\frac{0.2}{0.8}} \\ r &= \frac{-3.41}{6.2} \sqrt{0.25} \\ r &= -0.55 \times 0.5 = -0.275\end{aligned}$$

$$\begin{aligned}\textbf{Item 47} r_{\text{pbi}} &= \frac{41-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.79}{6.2} \sqrt{2.33} \\ r &= 0.288 \times 1.52 = 0.437\end{aligned}$$

$$\begin{aligned}\textbf{Item 48} r_{\text{pbi}} &= \frac{41.21-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{2}{6.2} \sqrt{4} \\ r &= 0.322 \times 2 = 0.644\end{aligned}$$

$$\begin{aligned}\text{Item 49 } r_{\text{pbi}} &= \frac{42.62-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{3.41}{6.2} \sqrt{2.33} \\ r &= 0.55 \times 1.52 = 0.836\end{aligned}$$

$$\begin{aligned}\text{Item 50 } r_{\text{pbi}} &= \frac{41.88-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.67}{6.2} \sqrt{2.33} \\ r &= 0.430 \times 1.52 = 0.653\end{aligned}$$

$$\begin{aligned}\text{Item 51 } r_{\text{pbi}} &= \frac{41.12-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.91}{6.2} \sqrt{2.33} \\ r &= 0.308 \times 1.52 = 0.468\end{aligned}$$

$$\begin{aligned}\text{Item 52 } r_{\text{pbi}} &= \frac{41.05-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.84}{6.2} \sqrt{4} \\ r &= 0.296 \times 2 = 0.592\end{aligned}$$

$$\begin{aligned}\text{Item 53 } r_{\text{pbi}} &= \frac{43.5-39.21}{6.2} \sqrt{\frac{0.6}{0.4}} \\ r &= \frac{4.29}{6.2} \sqrt{1.5} \\ r &= 0.691 \times 1.2 = 0.829\end{aligned}$$

$$\begin{aligned}\text{Item 54 } r_{\text{pbi}} &= \frac{41.53-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.32}{6.2} \sqrt{2.33} \\ r &= 0.374 \times 1.52 = 0.568\end{aligned}$$

$$\begin{aligned}\text{Item 55 } r_{\text{pbi}} &= \frac{42.5-39.21}{6.2} \sqrt{\frac{0.2}{0.8}} \\ r &= \frac{3.29}{6.2} \sqrt{0.25} \\ r &= 0.530 \times 0.5 = 0.265\end{aligned}$$

$$\begin{aligned}\text{Item 56 } r_{\text{pbi}} &= \frac{41-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.79}{6.2} \sqrt{2.33} \\ r &= 0.288 \times 1.52 = 0.437\end{aligned}$$

$$\begin{aligned}\text{Item 57 } r_{\text{pbi}} &= \frac{40.77-39.21}{6.2} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.56}{6.2} \sqrt{4} \\ r &= 0.251 \times 2 = 0.502\end{aligned}$$

$$\begin{aligned}\text{Item 58 } r_{\text{pbi}} &= \frac{41.13-39.21}{6.2} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.92}{6.2} \sqrt{2.33}\end{aligned}$$



$$r = 0.309 \times 1.52 = 0.469$$

$$\text{Item 59 } r_{\text{pbi}} = \frac{40.5 - 39.21}{6.2} \sqrt{\frac{0.2}{0.8}}$$

$$r = \frac{1.29}{6.2} \sqrt{0.25}$$

$$r = 0.208 \times 0.5 = 0.104$$

$$\text{Item 60 } r_{\text{pbi}} = \frac{39.75 - 39.21}{6.2} \sqrt{\frac{0.2}{0.8}}$$

$$r = \frac{0.54}{6.2} \sqrt{0.25}$$

$$r = 0.087 \times 0.5 = 0.0435$$

$$\text{Item 61 } r_{\text{pbi}} = \frac{42.07 - 39.21}{6.2} \sqrt{\frac{0.6}{0.4}}$$

$$r = \frac{2.86}{6.2} \sqrt{1.5}$$

$$r = 0.461 \times 1.2 = 0.553$$

$$\text{Item 62 } r_{\text{pbi}} = \frac{39.33 - 39.21}{6.2} \sqrt{\frac{0.3}{0.7}}$$

$$r = \frac{0.12}{6.2} \sqrt{0.42}$$

$$r = 0.0193 \times 0.64 = 0.0123$$

$$\text{Item 63 } r_{\text{pbi}} = \frac{41.66 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{2.45}{6.2} \sqrt{2.33}$$

$$r = 0.395 \times 1.52 = 0.6004$$

$$\text{Item 64 } r_{\text{pbi}} = \frac{42.35 - 39.21}{6.2} \sqrt{\frac{0.6}{0.4}}$$

$$r = \frac{3.14}{6.2} \sqrt{1.5}$$

$$r = 0.506 \times 1.2 = 0.6072$$

$$\text{Item 65 } r_{\text{pbi}} = \frac{39.85 - 39.21}{6.2} \sqrt{\frac{0.3}{0.7}}$$

$$r = \frac{0.64}{6.2} \sqrt{0.42}$$

$$r = 0.1032 \times 0.64 = 0.0660$$

$$\text{Item 66 } r_{\text{pbi}} = \frac{36 - 39.21}{6.2} \sqrt{\frac{0.3}{0.7}}$$

$$r = \frac{-0.321}{6.2} \sqrt{0.42}$$

$$r = -0.517 \times 0.64 = -0.3308$$

$$\text{Item 67 } r_{\text{pbi}} = \frac{40.55 - 39.21}{6.2} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.34}{6.2} \sqrt{4}$$

$$r = 0.216 \times 2 = 0.432$$

$$\text{Item 68 } r_{\text{pbi}} = \frac{41.33 - 39.21}{6.2} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{2.12}{6.2} \sqrt{2.33}$$

$$r = 0.341 \times 1.52 = 0.518$$

**Item 69**  $r_{\text{pbi}} = \frac{41-39.21}{6.2} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.79}{6.2} \sqrt{2.33}$$

$$r = 0.288 \times 1.52 = 0.437$$

**Item 70**  $r_{\text{pbi}} = \frac{41.78-39.21}{6.2} \sqrt{\frac{0.6}{0.4}}$

$$r = \frac{2.57}{6.2} \sqrt{1.5}$$

$$r = 0.414 \times 1.2 = 0.496$$

## 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.

Appendix 9

Validity of Post 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			
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	1	0	1	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	1	1	0	0	0	0
3	0	0	1	1	1	1	0	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	1	0	1	1	1	1	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	0	0	0	1	1	1	1	0	1	1	1	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	1	1	0	1	0	0	1	1	1	0	1	0	0	1	1	1	1	1	0	0	1	1	0	0	1	0	1
6	1	1	1	0	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	0	0	1	0	0	0	1	1	0	0	1	1	1	1	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	0	0	1	1	1	0	0	1	1	1	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	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	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	1	1	1	0	1
11	0	1	0	0	1	1	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	1	0	0	
12	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0	0	1	1	1	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	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	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	1	1	0	1	1	0	1	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	0	1	1	1	1	1	0	1	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	0	1	0	0	1	0	1	0	1	0	1	1	1	1	1	1	1	0	1	1	1
18	0	0	1	1	0	1	0	1	0	0	1	1	0	1	0	1	1	1	1	0	1	1	1	1	0	1	1	0	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	0	1	1	0	1	0	0	1	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1
20	1	1	1	1	1	1	1	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	1	0	0	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	1	0	1	0	1	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	0	1	0	1	1	1	0	0	1	0	1	1	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	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0
N=23	15	4	8	6	7	5	5	8	6	18	4	17	17	8	3	15	16	22	15	14	5	11	8	7	9	5	4	19	6	17	5	21	19	6	5	16	22	17	5	7	6	1	
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	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	0,3	0,1	0,3	0,3	0,3	0,3	0,3	

Cont....

### Validity of Post Test

No	NUMBER OF ITEMS																												Xt	Xt <sup>2</sup>			
	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	
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	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	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	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	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	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	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	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	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	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	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	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	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	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	1	0	1	0	1	1	0	1	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	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	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	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	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	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	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	0	40	1600
N=23	17	15	15	2	4	17	16	21	16	18	4	17	15	15	16	3	18	15	17	1	15	5	16	17	1	1	1	1	3	4	Σxt=1022	Σxt²=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 ( $M_t$ )

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

$$M_t = \frac{1022}{23} = 44.43$$

#### 2. Standard Deviation ( $SD_t$ )

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

$$SD_t = \sqrt{\frac{46202}{23} - \left(\frac{1022}{23}\right)^2}$$

$$SD_t = \sqrt{2008.78 - 44.43^2}$$

$$SD_t = \sqrt{2008.78 - 1974.02} = \sqrt{34.76} = 5.89$$

#### 3. Means Score ( $M_p$ )

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

$$M_{p1} = \frac{50+40+52+47+49+54+42+51+45+47+44+51+38+43+44}{15}$$

$$M_{p1} = \frac{697}{15} = 46.46$$

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

$$M_{p2} = \frac{50+40+52+47+49+42+44+51+45+47+44+51+44}{13}$$

$$M_{p2} = \frac{646}{14} = 46.62$$

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

$$M_{p3} = \frac{50+40+51+52+33+47+54+42+44+51+44+45+47+44+42+51+40}{17}$$

$$M_{p3} = \frac{787}{17} = 46.29$$

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

$$M_{p4} = \frac{50+40+51+49+54+42+51+44+45+47+41+44+42+51+38+44}{16}$$

$$M_{p4} = \frac{743}{16} = 46.43$$

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

$$M_{p5} = \frac{50+40+51+52+47+49+54+42+51+44+47+41+44+38+43+44+40}{17}$$

$$M_{p5} = \frac{787}{17} = 46.29$$

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

$$M_{p6} = \frac{50+40+51+52+47+49+42+44+51+44+47+42+51+38+44}{15}$$

$$M_{p6} = \frac{692}{15} = 46.13$$

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

$$M_{p7} = \frac{40+52+47+54+42+51+44+45+47+41+51+38+43+44+40}{15}$$

$$M_{p7} = \frac{679}{15} = 46.25$$

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

$$M_{p8} = \frac{50+40+51+52+33+47+49+54+42+44+51+44+47+41+42+51+43+44}{18}$$

$$M_{p8} = \frac{825}{18} = 45.83$$

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

$$M_{p9} = \frac{51+52+49+45+51+44}{6}$$

$$M_{p9} = \frac{292}{6} = 48.66$$

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

$$M_{p10} = \frac{50+40+51+52+33+47+49+54+42+44+51+45+47+41+51+43+44+40}{18}$$

$$M_{p10} = \frac{824}{18} = 45.78$$

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

$$M_{p11} = \frac{51+54+51+42}{4}$$

$$M_{p11} = \frac{198}{4} = 49.5$$

**Item 12**  $M_{p12} = \frac{50+51+52+47+49+54+44+51+44+45+47+44+42+51+43+44+40}{17}$

$$M_{p12} = \frac{838}{17}$$

$$M_{p12} = 49.29$$



$$\text{Item 13 } M_{p13} = \frac{50+40+51+52+49+54+42+51+44+47+41+44+44+51+43+44+40}{17}$$

$$M_{p13} = \frac{787}{17}$$

$$M_{p13} = 46.29$$

$$\text{Item 14 } M_{p14} = \frac{50+40+51+52+47+49+54+42+51+44+45+47+44+51+38+43+44+40}{18}$$

$$M_{p14} = \frac{832}{18} = 46.22$$

$$\text{Item 15 } M_{p15} = \frac{50+44+51}{3}$$

$$M_{p15} = \frac{145}{3} = 48.33$$

$$\text{Item 16 } M_{p16} = \frac{50+51+52+47+49+42+44+51+45+47+44+42+51+44+40}{15}$$

$$M_{p16} = \frac{699}{15} = 46.6$$

$$\text{Item 17 } M_{p17} = \frac{50+40+51+47+49+54+42+51+45+47+44+51+38+43+44}{15}$$

$$M_{p17} = \frac{696}{15} = 46.4$$

$$\text{Item 18 } M_{p18} = \frac{50+40+51+52+33+47+49+54+42+44+51+44+45+47+41+44+42+51+38+43+44+40}{22}$$

$$M_{p18} = \frac{992}{22} = 45.09$$

$$\text{Item 19 } M_{p19} = \frac{50+40+51+52+47+49+54+42+51+44+45+47+41+44+42}{15}$$

$$M_{p19} = \frac{699}{15} = 46.6$$

$$\text{Item 20 } M_{p20} = \frac{51+52+47+54+44+51+44+47+41+44+51+38+43+44}{14}$$

$$M_{p20} = \frac{651}{14} = 46.5$$

$$\text{Item 21 } M_{p21} = \frac{50+40+52+54+42+44+51+44+45+47+44+42+51+43+44}{15}$$

$$M_{p21} = \frac{693}{15} = 46.2$$

$$\text{Item 22 } M_{p22} = \frac{50+40+51+52+47+49+54+42+44+51+44+45+41+44+42+51+38+44}{18}$$

$$M_{p22} = \frac{829}{18} = 46.05$$

$$\text{Item 23 } M_{p23} = \frac{50+40+52+47+49+54+42+44+51+45+47+41+42+51+43+44+40}{17}$$

$$M_{p23} = \frac{782}{17} = 46$$

$$\text{Item 24 } M_{p24} = \frac{40+51+52+47+49+54+42+44+51+45+47+41+44+42+51+38+43+44+40}{19}$$

$$M_{p24} = \frac{865}{19} = 45.53$$

$$\text{Item 25 } M_{p25} = \frac{33+44+41+51+43}{5}$$

$$M_{p25} = \frac{212}{5} = 42.4$$

$$\text{Item 26 } M_{p26} = \frac{51+54+51+42}{4}$$

$$M_{p26} = \frac{198}{4} = 49.5$$

$$\text{Item 27 } M_{p27} = \frac{50+40+51+52+33+47+49+54+42+44+51+44+45+47+44+42+51+43+40}{19}$$

$$M_{p27} = \frac{874}{19} = 46$$

$$\text{Item 28 } M_{p28} = \frac{51+52+49+45+51+44}{6}$$

$$M_{p28} = \frac{292}{6} = 48.66$$

$$\text{Item 29 } M_{p29} = \frac{50+40+51+52+49+54+42+44+51+44+45+47+44+42+51+43+40}{17}$$

$$M_{p29} = \frac{789}{17} = 46.41$$

$$\text{Item 30 } M_{p30} = \frac{50+51+52+49+54+42+44+51+44+47+44+42+38+43+44}{15}$$

$$M_{p30} = \frac{695}{15} = 46.33$$

$$\text{Item 31 } M_{p31} = \frac{50+40+51+52+33+47+49+54+44+30+44+45+47+41+44+42+51+38+43+44+40}{21}$$

$$M_{p31} = \frac{929}{21} = 44.23$$

$$\text{Item 32 } M_{p32} = \frac{50+40+51+52+33+47+49+54+42+44+51+44+45+47+44+42+51+43+40}{19}$$

$$M_{p32} = \frac{874}{19} = 46$$

$$\text{Item 33 } M_{p33} = \frac{50+40+51+52+33+49+54+44+51+44+45+47+41+44+42+51+43+44+40}{19}$$

$$M_{p33} = \frac{865}{19} = 45.53$$

$$\text{Item 34 } M_{p34} = \frac{50+51+52+54+42+44+51+44+45+47+44+42+51+43+40}{15}$$

$$M_{p34} = \frac{700}{15} = 46.66$$

$$\text{Item 35 } M_{p35} = \frac{50+40+51+52+47+54+44+51+44+45}{16}$$

$$M_{p35} = \frac{740}{16} = 46.25$$

$$\text{Item 36 } M_{p36} = \frac{50+40+51+52+33+47+49+54+42+44+30+51+44+45+47}{22}$$

$$M_{p36} = \frac{978}{22} = 44.45$$

$$\text{Item 37 } M_{p37} = \frac{40+51+52+33+47+49+54+42+44+51+45+47}{17}$$

$$M_{p37} = \frac{778}{17} = 45.8$$

$$\text{Item 38 } M_{p38} = \frac{50+51+52+47+49+54+44+51+44+45+44+51+43+44+40}{15}$$

$$M_{p38} = \frac{709}{15} = 47.26$$

$$\text{Item 39 } M_{p39} = \frac{50+51+52+47+49+54+42+30+51+44+47+41+44+51+43+44+40}{17}$$

$$M_{p39} = \frac{780}{17} = 45.88$$

$$\text{Item 40 } M_{p40} = \frac{50+51+52+33+47+49+54+44+51+45+47+41+44+51+38+44}{16}$$

$$M_{p40} = \frac{741}{16} = 46.31$$

$$\text{Item 41 } M_{p41} = \frac{50+51+52+33+47+49+54+42+30+44+45+41+44+42+38+43+44}{16}$$

$$M_{p41} = \frac{799}{17} = 47$$

$$\text{Item 42 } M_{p42} = \frac{40+52+47+49+54+42+51+44+45+47+44+51+38+43+44}{15}$$

$$M_{p42} = \frac{691}{15} = 46.06$$

$$\text{Item 43 } M_{p43} = \frac{50+40+52+47+49+54+44+51+45+47+44+51+38+43+44}{15}$$

$$M_{p43} = \frac{699}{15} = 46.6$$

$$\text{Item 44 } M_{p44} = \frac{33+43}{2}$$

$$M_{p44} = \frac{76}{2} = 38$$

$$\text{Item 45 } M_{p45} = \frac{51+54+51+42}{4}$$

$$M_{p45} = \frac{198}{4} = 49.5$$

$$\text{Item 46 } M_{p46} = \frac{50+40+51+52+47+49+54+42+44+47+41+44+51+38+43+44+40}{17}$$

$$M_{p46} = \frac{787}{17} = 46.29$$

$$\text{Item 47 } M_{p47} = \frac{50+40+51+52+7+49+54+42+44+51+44+47+42+51+38+44}{16}$$

$$M_{p47} = \frac{746}{16} = 46.62$$

$$\text{Item 48 } M_{p48} = \frac{50+40+51+52+33+47+49+54+44+30+44+45+47+41+44+42+51+38+43+44+40}{21}$$

$$M_{p48} = \frac{929}{21} = 44.23$$

$$\text{Item 49 } M_{p49} = \frac{50+51+52+47+49+54+44+51+44+45+41+44+42+51+43+44}{16}$$

$$M_{p49} = \frac{752}{16} = 47$$

$$\text{Item 50 } M_{p50} = \frac{50+40+51+52+47+49+54+42+44+51+44+47+41+44+51+43+44+40}{18}$$

$$M_{p50} = \frac{834}{18} = 46.33$$

$$\text{Item 51 } M_{p51} = \frac{51+54+51+42}{4}$$

$$M_{p51} = \frac{198}{4} = 49.5$$

$$\text{Item 52 } M_{p52} = \frac{50+40+51+52+33+47+49+54+44+51+45+47+41+51+43+44+40}{17}$$

$$M_{p52} = \frac{782}{17} = 46$$

$$\text{Item 53 } M_{p53} = \frac{50+51+52+47+49+54+44+51+44+45+44+51+43+44+40}{15}$$

$$M_{p53} = \frac{709}{15} = 47.26$$

$$\text{Item 54 } M_{p54} = \frac{51+52+47+49+54+42+51+44+47+44+42+51+38+44+40}{15}$$

$$M_{p54} = \frac{696}{15} = 46.4$$

$$\text{Item 55 } M_{p55} = \frac{50+51+52+33+47+49+54+42+44+51+45+47+41+51+44+40}{16}$$

$$M_{p55} = \frac{741}{16} = 46.31$$

$$\text{Item 56 } M_{p56} = \frac{50+44+51}{3}$$

$$M_{p56} = \frac{145}{3} = 48.33$$

$$\text{Item 57 } M_{p57} = \frac{50+40+51+47+49+54+42+44+51+44+45+47+41+44+51+38+43+44}{18}$$

$$M_{p57} = \frac{825}{18} = 45.83$$

$$\text{Item 58 } M_{p58} = \frac{50+51+52+47+54+42+44+51+44+47+41+44+51+43+44}{15}$$

$$M_{p58} = \frac{705}{15} = 47$$

$$\text{Item 59 } M_{p59} = \frac{50+40+51+52+33+49+54+44+51+44+45+47+44+51+43+44+40}{17}$$

$$M_{p59} = \frac{782}{17} = 46$$

$$\text{Item 60 } M_{p60} = \frac{51+52+33+47+54+44+30+51+44+47+41+44+51+43+44}{15}$$

$$M_{p60} = \frac{696}{15} = 46.4$$

$$\text{Item 61 } M_{p61} = \frac{50+40+52+54+42+44+51+44+45+47+44+42+51+43+40}{15}$$

$$M_{p61} = \frac{689}{15} = 45.93$$

$$\text{Item 62 } M_{p62} = \frac{50+47+51+41+44}{5}$$

$$M_{p62} = \frac{233}{5} = 46.6$$

$$\text{Item 63 } M_{p63} = \frac{50+52+33+47+49+54+44+30+51+45+47+41+44+51+43+40}{16}$$

$$M_{p63} = \frac{745}{16} = 46.56$$

$$\text{Item 64 } M_{p64} = \frac{50+40+51+52+33+47+49+54+44+51+44+47+51+44+40}{15}$$

$$M_{p64} = \frac{697}{15} = 46.46$$

$$\text{Item 65 } M_{p65} = \frac{50+40+52+47+49+54+42+44+51+45+47+41+42+51+43+40}{16}$$

$$M_{p65} = \frac{738}{16} = 46.12$$

$$\text{Item 66 } M_{p66} = \frac{50+51+52+49+54+44+30+51+44+45+47+44+51+43}{14}$$

$$M_{p66} = \frac{655}{14} = 46.78$$

$$\text{Item 67 } M_{p67} = \frac{40+51+52+47+49+54+44+51+44+45+47+41+44+42+51+43+44+40}{18}$$

$$M_{p67} = \frac{829}{18} = 46.05$$

$$\text{Item 68 } M_{p68} = \frac{51+52+47+49+54+42+44+51+45+41+44+51+38+44+40}{15}$$

$$M_{p68} = \frac{693}{15} = 46.2$$

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

$$\begin{aligned} \text{Item 1 } r_{pbi} &= \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}} \\ r_{pbi} &= \frac{46.46 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.03}{5.89} \sqrt{2.33} \\ r &= 0.334 \times 1.52 = 0.522 \end{aligned}$$

$$\begin{aligned} \text{Item 2 } r_{pbi} &= \frac{46.62 - 44.43}{5.28} \sqrt{\frac{0.6}{0.4}} \\ r &= \frac{2.19}{5.89} \sqrt{1.5} \\ r &= 0.38 \times 1.2 = 0.456 \end{aligned}$$

$$\begin{aligned} \text{Item 3 } r_{pbi} &= \frac{46.29 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.86}{5.89} \sqrt{2.33} \\ r &= 0.32 \times 1.52 = 0.486 \end{aligned}$$

$$\begin{aligned} \text{Item 4 } r_{pbi} &= \frac{46.43 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2}{5.89} \sqrt{2.33} \\ r &= 0.34 \times 1.52 = 0.516 \end{aligned}$$

$$\begin{aligned} \text{Item 5 } r_{pbi} &= \frac{46.29 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.86}{5.89} \sqrt{2.33} \\ r &= 0.32 \times 1.52 = 0.486 \end{aligned}$$

$$\begin{aligned} \text{Item 6 } r_{pbi} &= \frac{46.13 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.7}{5.89} \sqrt{2.33} \\ r &= 0.288 \times 1.52 = 0.437 \end{aligned}$$

$$\begin{aligned} \text{Item 7 } r_{pbi} &= \frac{46.25 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.82}{5.89} \sqrt{2.33} \\ r &= 0.31 \times 1.52 = 0.471 \end{aligned}$$

$$\text{Item 8 } r_{\text{pbi}} = \frac{45.83 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.4}{5.89} \sqrt{4}$$

$$r = 0.24 \times 2 = 0.48$$

$$\text{Item 9 } r_{\text{pbi}} = \frac{48.66 - 44.43}{5.89} \sqrt{\frac{0.2}{0.8}}$$

$$r = \frac{4.23}{5.89} \sqrt{0.25}$$

$$r = 0.71 \times 0.5 = 0.355$$

$$\text{Item 10 } r_{\text{pbi}} = \frac{45.78 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.35}{5.89} \sqrt{4}$$

$$r = 0.229 \times 2 = 0.458$$

$$\text{Item 11 } r_{\text{pbi}} = \frac{49.5 - 44.43}{5.89} \sqrt{\frac{0.1}{0.9}}$$

$$r = \frac{5.07}{5.89} \sqrt{0.1}$$

$$r = 0.86 \times 0.3 = 0.258$$

$$\text{Item 12 } r_{\text{pbi}} = \frac{49.29 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{4.86}{5.89} \sqrt{2.33}$$

$$r = 0.825 \times 1.52 = 0.542$$

$$\text{Item 13 } r_{\text{pbi}} = \frac{46.29 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{1.86}{5.28} \sqrt{2.33}$$

$$r = 0.315 \times 1.52 = 0.4788$$

$$\text{Item 14 } r_{\text{pbi}} = \frac{46.22 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.79}{5.89} \sqrt{4}$$

$$r = 0.303 \times 2 = 0.606$$

$$\text{Item 15 } r_{\text{pbi}} = \frac{48.33 - 44.43}{5.89} \sqrt{\frac{0.1}{0.9}}$$

$$r = \frac{3.9}{5.89} \sqrt{0.11}$$

$$r = 0.662 \times 0.33 = 0.2184$$



$$\begin{aligned}\text{Item 16 } r_{\text{pbi}} &= \frac{46.6 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.17}{5.89} \sqrt{2.33} \\ r &= 0.368 \times 1.52 = 0.5593\end{aligned}$$

$$\begin{aligned}\text{Item 17 } r_{\text{pbi}} &= \frac{46.4 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.97}{5.83} \sqrt{2.33} \\ r &= 0.334 \times 1.52 = 0.507\end{aligned}$$

$$\begin{aligned}\text{Item 18 } r_{\text{pbi}} &= \frac{45.09 - 44.43}{5.89} \sqrt{\frac{0.9}{0.1}} \\ r &= \frac{0.66}{5.89} \sqrt{9} \\ r &= 0.112 \times 3 = 0.336\end{aligned}$$

$$\begin{aligned}\text{Item 19 } r_{\text{pbi}} &= \frac{46.6 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.17}{5.89} \sqrt{2.33} \\ r &= 0.368 \times 1.52 = 0.5593\end{aligned}$$

$$\begin{aligned}\text{Item 20 } r_{\text{pbi}} &= \frac{46.5 - 44.43}{5.89} \sqrt{\frac{0.6}{0.4}} \\ r &= \frac{2.07}{5.89} \sqrt{1.5} \\ r &= 0.351 \times 1.22 = 0.428\end{aligned}$$

$$\begin{aligned}\text{Item 21 } r_{\text{pbi}} &= \frac{46.2 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.77}{5.89} \sqrt{2.33} \\ r &= 0.300 \times 1.52 = 0.456\end{aligned}$$

$$\begin{aligned}\text{Item 22 } r_{\text{pbi}} &= \frac{46.05 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.62}{5.89} \sqrt{4} \\ r &= 0.275 \times 2 = 0.55\end{aligned}$$

$$\begin{aligned}\text{Item 23 } r_{\text{pbi}} &= \frac{46 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.57}{5.89} \sqrt{4} \\ r &= 0.266 \times 2 = 0.532\end{aligned}$$

$$\text{Item 24 } r_{\text{pbi}} = \frac{45.53 - 44.43}{5.89} \sqrt{\frac{0.9}{0.1}}$$

$$r = \frac{1.1}{5.89} \sqrt{9}$$

$$r = 0.187 \times 3 = 0.561$$

$$\text{Item 25 } r_{\text{pbi}} = \frac{42.4 - 44.43}{5.89} \sqrt{\frac{0.1}{0.9}}$$

$$r = \frac{-2.03}{5.89} \sqrt{0.1}$$

$$r = -0.344 \times 0.3 = -0.103$$

$$\text{Item 26 } r_{\text{pbi}} = \frac{49.5 - 44.43}{5.89} \sqrt{\frac{0.1}{0.9}}$$

$$r = \frac{5.07}{5.89} \sqrt{0.1}$$

$$r = 0.86 \times 0.3 = 0.258$$

$$\text{Item 27 } r_{\text{pbi}} = \frac{46 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.57}{5.89} \sqrt{4}$$

$$r = 0.266 \times 2 = 0.532$$

$$\text{Item 28 } r_{\text{pbi}} = \frac{48.66 - 44.43}{5.89} \sqrt{\frac{0.2}{0.8}}$$

$$r = \frac{4.23}{5.89} \sqrt{0.25}$$

$$r = 0.718 \times 0.5 = 0.359$$

$$\text{Item 29 } r_{\text{pbi}} = \frac{46 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.57}{5.89} \sqrt{4}$$

$$r = 0.266 \times 2 = 0.532$$

$$\text{Item 30 } r_{\text{pbi}} = \frac{46.33 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{1.9}{5.89} \sqrt{2.33}$$

$$r = 0.322 \times 1.52 = 0.4894$$

$$\text{Item 31 } r_{\text{pbi}} = \frac{44.23 - 44.43}{5.89} \sqrt{\frac{0.9}{0.1}}$$

$$r = \frac{-0.2}{5.89} \sqrt{9}$$

$$r = -0.033 \times 3 = -0.1018$$

$$\text{Item 32 } r_{\text{pbi}} = \frac{46 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.57}{5.89} \sqrt{4}$$

$$r = 0.266 \times 2 = 0.532$$

$$\text{Item 33 } r_{\text{pbi}} = \frac{45.53 - 44.43}{5.89} \sqrt{\frac{0.9}{0.3}}$$

$$r = \frac{1.1}{5.89} \sqrt{9}$$

$$r = 0.186 \times 3 = 0.5093$$

$$\text{Item 34 } r_{\text{pbi}} = \frac{46.66 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{2.23}{5.89} \sqrt{2.33}$$

$$r = 0.378 \times 1.52 = 0.5745$$

$$\text{Item 35 } r_{\text{pbi}} = \frac{46.25 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{1.82}{5.89} \sqrt{2.33}$$

$$r = 0.308 \times 1.52 = 0.4681$$

$$\text{Item 36 } r_{\text{pbi}} = \frac{44.45 - 44.43}{5.89} \sqrt{\frac{0.9}{0.1}}$$

$$r = \frac{0.02}{5.89} \sqrt{9}$$

$$r = 0.0034 \times 3 = 0.0102$$

$$\text{Item 37 } r_{\text{pbi}} = \frac{45.8 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.37}{5.89} \sqrt{4}$$

$$r = 0.232 \times 2 = 0.465$$

$$\text{Item 38 } r_{\text{pbi}} = \frac{47.26 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{2.83}{5.89} \sqrt{2.33}$$

$$r = 0.480 \times 1.52 = 0.7296$$

$$\text{Item 39 } r_{\text{pbi}} = \frac{45.88 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.45}{5.89} \sqrt{4}$$

$$r = 0.246 \times 2 = 0.492$$

$$\text{Item 40 } r_{\text{pbi}} = \frac{46.31 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{1.88}{5.89} \sqrt{2.33}$$

$$r = 0.319 \times 1.52 = 0.4848$$

$$\textbf{Item 41} r_{\text{pbi}} = \frac{47-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{2.57}{5.89} \sqrt{2.33}$$

$$r = 0.436 \times 1.52 = 0.662$$

$$\textbf{Item 42} r_{\text{pbi}} = \frac{46.06-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{1.63}{5.89} \sqrt{2.33}$$

$$r = 0.276 \times 1.52 = 0.4206$$

$$\textbf{Item 43} r_{\text{pbi}} = \frac{46.6-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{2.17}{5.89} \sqrt{2.33}$$

$$r = 0.368 \times 1.52 = 0.559$$

$$\textbf{Item 44} r_{\text{pbi}} = \frac{38-44.43}{5.89} \sqrt{\frac{0.1}{0.9}}$$

$$r = \frac{-6.43}{5.89} \sqrt{0.11}$$

$$r = -1.09 \times 0.33 = -0.359$$

$$\textbf{Item 45} r_{\text{pbi}} = \frac{49.5-44.43}{5.89} \sqrt{\frac{0.1}{0.9}}$$

$$r = \frac{5.07}{5.89} \sqrt{0.11}$$

$$r = 0.860 \times 0.33 = 0.2838$$

$$\textbf{Item 46} r_{\text{pbi}} = \frac{46.29-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{1.86}{5.89} \sqrt{2.33}$$

$$r = 0.315 \times 1.52 = 0.4788$$

$$\textbf{Item 47} r_{\text{pbi}} = \frac{46.62-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{2.19}{5.89} \sqrt{2.33}$$

$$r = 0.371 \times 1.52 = 0.5639$$

$$\textbf{Item 48} r_{\text{pbi}} = \frac{44.23-44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{-0.2}{5.89} \sqrt{9}$$

$$r = -0.033 \times 3 = -0.099$$

$$\begin{aligned}\text{Item 49 } r_{\text{pbi}} &= \frac{47-44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{2.57}{5.89} \sqrt{2.33} \\ r &= 0.436 \times 1.52 = 0.6627\end{aligned}$$

$$\begin{aligned}\text{Item 50 } r_{\text{pbi}} &= \frac{46.33-44.43}{5.89} \sqrt{\frac{0.8}{0.2}} \\ r &= \frac{1.9}{5.89} \sqrt{4} \\ r &= 0.322 \times 2 = 0.644\end{aligned}$$

$$\begin{aligned}\text{Item 51 } r_{\text{pbi}} &= \frac{49.5-44.43}{5.89} \sqrt{\frac{0.1}{0.9}} \\ r &= \frac{5.07}{5.89} \sqrt{0.25} \\ r &= 0.860 \times 0.5 = 0.532\end{aligned}$$

$$\begin{aligned}\text{Item 52 } r_{\text{pbi}} &= \frac{46-44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.6}{5.89} \sqrt{2.33} \\ r &= 0.276 \times 1.52 = 0.419\end{aligned}$$

$$\begin{aligned}\text{Item 53 } r_{\text{pbi}} &= \frac{47.26-44.43}{5.89} \sqrt{\frac{0.6}{0.4}} \\ r &= \frac{2.83}{5.89} \sqrt{1.5} \\ r &= 0.480 \times 1.2 = 0.576\end{aligned}$$

$$\begin{aligned}\text{Item 54 } r_{\text{pbi}} &= \frac{46.4-44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.97}{5.89} \sqrt{2.33} \\ r &= 0.334 \times 1.52 = 0.507\end{aligned}$$

$$\begin{aligned}\text{Item 55 } r_{\text{pbi}} &= \frac{46.31-44.43}{5.89} \sqrt{\frac{0.7}{0.3}} \\ r &= \frac{1.88}{5.89} \sqrt{2.33} \\ r &= 0.319 \times 1.52 = 0.4848\end{aligned}$$

$$\begin{aligned}\text{Item 56 } r_{\text{pbi}} &= \frac{48.33-44.43}{5.89} \sqrt{\frac{0.1}{0.9}} \\ r &= \frac{3.9}{5.89} \sqrt{0.11} \\ r &= 0.662 \times 0.33 = 0.218\end{aligned}$$

$$\text{Item 57 } r_{\text{pbi}} = \frac{45.83-44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$$

$$r = \frac{1.4}{5.89} \sqrt{4}$$

$$r = 0.237 \times 2 = 0.474$$

**Item 58**  $r_{\text{pbi}} = \frac{47-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.57}{5.89} \sqrt{2.33}$$

$$r = 0.436 \times 1.52 = 0.662$$

**Item 59**  $r_{\text{pbi}} = \frac{46-44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$

$$r = \frac{1.57}{5.89} \sqrt{4}$$

$$r = 0.266 \times 2 = 0.532$$

**Item 60**  $r_{\text{pbi}} = \frac{46.4-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.97}{5.89} \sqrt{2.33}$$

$$r = 0.334 \times 1.52 = 0.5076$$

**Item 61**  $r_{\text{pbi}} = \frac{45.93-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.53}{5.89} \sqrt{2.33}$$

$$r = 0.27 \times 1.52 = 0.414$$

**Item 62**  $r_{\text{pbi}} = \frac{46.6-44.43}{5.89} \sqrt{\frac{0.2}{0.8}}$

$$r = \frac{2.17}{5.89} \sqrt{0.25}$$

$$r = 0.368 \times 0.5 = 0.184$$

**Item 63**  $r_{\text{pbi}} = \frac{46.56-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.13}{5.89} \sqrt{2.33}$$

$$r = 0.361 \times 1.52 = 0.548$$

**Item 64**  $r_{\text{pbi}} = \frac{46.46-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.03}{5.89} \sqrt{2.33}$$

$$r = 0.344 \times 1.52 = 0.522$$

**Item 65**  $r_{\text{pbi}} = \frac{46.12-44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.7}{5.89} \sqrt{2.33}$$

$$r = 0.293 \times 1.52 = 0.445$$

**Item 66**  $r_{\text{pbi}} = \frac{46.78 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{2.35}{5.89} \sqrt{2.33}$$

$$r = 0.398 \times 1.52 = 0.6049$$

**Item 67**  $r_{\text{pbi}} = \frac{46.05 - 44.43}{5.89} \sqrt{\frac{0.8}{0.2}}$

$$r = \frac{1.62}{5.89} \sqrt{4}$$

$$r = 0.275 \times 2 = 0.55$$

**Item 68**  $r_{\text{pbi}} = \frac{46.2 - 44.43}{5.89} \sqrt{\frac{0.7}{0.3}}$

$$r = \frac{1.77}{5.89} \sqrt{2.33}$$

$$r = 0.3005 \times 1.52 = 0.4567$$

**Item 69**  $r_{\text{pbi}} = \frac{42.66 - 44.43}{5.89} \sqrt{\frac{0.1}{0.9}}$

$$r = \frac{-1.77}{5.89} \sqrt{0.11}$$

$$r = -0.300 \times 0.33 = -0.099$$

**Item 70**  $r_{\text{pbi}} = \frac{45.25 - 44.43}{5.89} \sqrt{\frac{0.2}{0.8}}$

$$r = \frac{0.82}{5.89} \sqrt{0.25}$$

$$r = 0.139 \times 0.5 = 0.0695$$

## 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

### Reliability 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		
1	1	1	0	1	1	1	0	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	1	0	0	1	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	1	0	0	0	
3	0	0	0	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	1	0	1	1	
4	1	1	0	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	1	0	1	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	0	0	0	1	1	0	0	1	1	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	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	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	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	1	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	1	0	0	1	0		
12	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	1	1	1	1	1	0	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	1	1	1	0	1	1	1	1	0	0	1	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	0	1	1	1	1	0	0	1	0	1	1	1	1	1	0	0	1	
15	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0	0	1	1	1	1	1	1	0	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	0	0	0	1	0	1	0	0	1	1	1	1	0	1	1	
17	1	1	0	1	1	0	1	0	1	0	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	1	0	1	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	0	0	1	1	1	0	1	1	1	1	0	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	1	
20	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	1	1	
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	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	0	

N=23	1 6	1 5	6	1 8	1 6	1 6	1 5	1 8	1 5	1 8	1 8	1 8	8	1 9	1 6	1 6	1 5	6	1 6	1 6	1 5	1 8	1 6	1 8	2	0	1 8	1 8	5	1 3	1 4	1 7	1 9	7	1 5	1 6	1 8	1 6	6	1 6	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		

Cont....

### Reliabilty of Pre Test

N o	NUMBER OF ITEMS																														Xt	Xt <sup>2</sup>	
	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			
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	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	0	1	1	0	0	1	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	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	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	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	6	1	1	1	1	1	1	4	16	18	15	4	4	14	6	15	14	7	6	18	15	16	4	Σx t= 90 2	Σxt² = 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:

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

$$N = 23$$

$$\sum X_t = 902$$

$$\sum X_t^2 = 36248$$

$$\sum pq = 9.16$$

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

$$= 36248 - \left( \frac{902^2}{23} \right) = 36248 - \frac{813604}{23} = 36248 - 35374.08 = 873.92$$

$$S_t^2 = \frac{\sum X^2}{N} = \frac{873.92}{23}$$

$$S_t^2 = 37.99$$

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

$$R_{11} = \left( \frac{70}{70-1} \right) \left( \frac{37.99-9.16}{37.99} \right) = \left( \frac{70}{69} \right) \left( \frac{28.83}{37.99} \right)$$

$$= (1.014) (0.758)$$

$$= 0.77 \text{ (} r_{11} > 0.70 = \text{reliable)}$$

Test is reliable if  $r_{\text{count}} > r_{\text{tabel}}$ . Based on calculation above, the test is reliable.

# Appendix 14

## Reliability of Post 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		
1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	1	0	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	1	0	1	1	1	1	0	0	1	0	1	0	1	0	1	1	1	1	1	1	0	0	0
3	0	0	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	0	1	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	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	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	1	0	0	1	1	0	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	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	1	0	0	1	1	1	1	1	1	0	1	0	0	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	1	1
9	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	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	1	1	0	1
11	0	1	0	0	1	1	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	1	0	
12	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0	0	1	1	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	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	1	0	1	1	1	1	0	0	1	1	1	0	1	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	1	0	1	1	0	0	1	0	1	1	1	1	1	1	1	1	0	1	1	0	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	1	0	1	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	1	0	1	1	1
18	0	0	1	1	0	1	0	1	0	0	1	1	0	1	0	1	1	1	1	1	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	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	1	0	1	1	1	1	1	1
20	1	1	1	1	1	1	1	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	1	0	0	1	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	1	0	1	0	1	1	1	0
22	1	0	0	1	1	1	1	1	1	1	0	1	1	1	0	1	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	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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Cont....

### Reliability of Post Test

No	NUMBER OF ITEMS																														Xt	Xt <sup>2</sup>
	41	42	43	44	4 5	4 6	4 7	4 8	4 9	5 0	5 1	5 2	5 3	5 4	5 5	5 6	5 7	5 8	5 9	6 0	6 1	6 2	6 3	6 4	6 5	6 6	6 7	6 8	6 9	70		
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	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	
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	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	8	4	17	15	15	6	3	18	15	17	5	5	5	16	17	16	14	11	18	5	3	4	Σxt = 1022	Σxt² = 46202
P	0,7	0,7	0,7	0,1	0,1	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	0,1	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 15

### Reliability Post-Test

To get reliability of the test, the researcher uses formula KR-20:

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

$$N = 23$$

$$\sum X_t = 1022$$

$$\sum X_t^2 = 46202$$

$$\sum pq = 8.41$$

$$\begin{aligned} \sum X^2 &= \sum X_t^2 - \left( \frac{\sum X_t}{N} \right)^2 \\ &= 46202 - \left( \frac{1022}{23} \right)^2 = 46202 - \frac{1044484}{23} = 46202 - 45412.34 = 789.66 \end{aligned}$$

$$S_t^2 = \frac{\sum X^2}{N} = \frac{789.66}{23}$$

$$S_t^2 = 27.66$$

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

$$R_{11} = \left( \frac{70}{70-1} \right) \left( \frac{34.33-8.41}{34.33} \right) = \left( \frac{70}{69} \right) \left( \frac{25.92}{34.33} \right)$$

$$\begin{aligned} &= (1.014) (0.75) \\ &= 0.76 (r_{11} > 0.70 = \text{reliable}) \end{aligned}$$

Test is reliable if  $r_{\text{count}} > r_{\text{tabel}}$ . Based on calculation above, the test is reliable.

## Appendix 16

### Score of Experimental Class and Control Class on Pre Test

#### 1. Score of Experimental Class Pre Test before using Know, Want to know, Learned (KWL) Strategy

No	The Initial Name of Students (n)	Score Pre-Test
1.	AHS	56
2.	AS	72
3.	AIP	34
4.	AAH	54
5.	AL	72
6.	ATN	78
7.	DKL	52
8.	DWS	78
9.	EFH	68
10.	HH	56
11.	HN	36
12.	ISL	50
13.	IM	56
14.	LD	68
15.	MSL	50
16.	MSL	68
17.	NH	56
18.	PJH	42
19.	SAH	60
20.	SRP	64
21.	SPN	50
22.	TH	44
23.	TRM	46
24.	YA	62
25.	YFH	48
Total		1420

## **2. Score of Control Class Pre Test**

<b>No</b>	<b>The Initial Name of Students (n)</b>	<b>Score Pre-Test</b>
<b>1.</b>	<b>AMAH</b>	<b>46</b>
<b>2.</b>	<b>DSS</b>	<b>60</b>
<b>3.</b>	<b>EJH</b>	<b>56</b>
<b>4.</b>	<b>JS</b>	<b>70</b>
<b>5.</b>	<b>MBN</b>	<b>62</b>
<b>6.</b>	<b>MRN</b>	<b>70</b>
<b>7.</b>	<b>MZH</b>	<b>44</b>
<b>8.</b>	<b>MR</b>	<b>60</b>
<b>9.</b>	<b>NA</b>	<b>46</b>
<b>10.</b>	<b>NKH</b>	<b>60</b>
<b>11.</b>	<b>NML</b>	<b>42</b>
<b>12.</b>	<b>PKR</b>	<b>60</b>
<b>13.</b>	<b>RH</b>	<b>42</b>
<b>14.</b>	<b>RA</b>	<b>54</b>
<b>15.</b>	<b>RD</b>	<b>46</b>
<b>16.</b>	<b>RFH</b>	<b>38</b>
<b>17.</b>	<b>SMP</b>	<b>54</b>
<b>18.</b>	<b>SERH</b>	<b>50</b>
<b>19.</b>	<b>SMS</b>	<b>36</b>
<b>20.</b>	<b>THD</b>	<b>64</b>
<b>21.</b>	<b>UKS</b>	<b>54</b>
<b>22.</b>	<b>WDD</b>	<b>36</b>
<b>23.</b>	<b>WGRH</b>	<b>70</b>
<b>24.</b>	<b>ZUMH</b>	<b>52</b>
<b>25.</b>	<b>ZH</b>	<b>52</b>
<b>Total</b>		<b>1324</b>

## Appendix 17

### RESULT OF NORMALITY TEST IN PRE-TEST

#### A. Result of Normality Test of XI MIA-2

1. The score of grade XIMIA-2 in pre-test from low score to high score:

34	36	42	44	46	48	50	50	50	52
54	56	56	56	56	60	62	64	68	68
68	72	72	78	78					

2. High = 78

Low = 34

Range = High – Low

$$= 78 - 34$$

$$= 44$$

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

$$= 1 + 3,3 \log (25)$$

$$= 1 + 3,3 (1.39)$$

$$= 1 + 4.58$$

$$= 5.58 / 5$$

4. Length of classes
 
$$= \frac{\text{range}}{\text{total of class}} = \frac{44}{5} = 8.8 = 9$$

5. Mean

Interval Class	F	X	x'	fx'	x' <sup>2</sup>	fx' <sup>2</sup>
34 – 42	3	38	+2	6	4	12
43 – 51	6	47	+1	6	1	6
52 – 60	<b>7</b>	<b>56</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
61 – 69	5	65	-1	-5	1	5
70 – 78	4	74	-2	-8	4	16
<i>i</i> = 9	30	-	-	-1	-	39

$$\begin{aligned} Mx &= M^1 + i \frac{\sum fx^1}{N} \\ &= 56 + 9 \left( \frac{-1}{25} \right) \\ &= 56 + 9 (-0.04) \\ &= 56 + (-0.6) \\ &= 55.64 \end{aligned}$$

$$\begin{aligned} \text{SD}_t &= i \sqrt{\frac{\sum f x'^2}{n} - \left(\frac{\sum f x'}{n}\right)^2} \\ &= 9 \sqrt{\frac{39}{25} - \left(\frac{-1}{25}\right)^2} \\ &= 9 \sqrt{1.56 - (-0.04)^2} \\ &= 9 \sqrt{1.56 - 0.016} \\ &= 9 \sqrt{1.544} \\ &= 9 \times 1.24 \\ &= 11.16 \end{aligned}$$

### Table of Normality Data Test with Chi Kuadrat Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f <sub>h</sub>	f <sub>0</sub>	$\frac{(f_0-f_h)^2}{f_h}$
70 – 78	78.5	2.04	0.4793	0.08	2	4	2.00
	69.5	1.24	0.3925				
61 – 69	60.5	0.43	0.1664	0.22	5.5	5	0.04
	52 – 60	51.5	-0.37				
43 – 51	42.5	-1.17	0.12100	0.23	5.75	6	0.01
	34 – 42	33.5	-1.98				
X <sup>2</sup>							3.68

Based on the table above, the researcher found that  $\chi^2_{\text{count}} = 3.68$  while  $\chi^2_{\text{table}} = 9.488$ . Because  $\chi^2_{\text{count}} < \chi^2_{\text{table}}$  ( $3.68 < 9.488$ ) with degree of freedom (dk)  $= 5 - 1 = 4$  and significant level  $\alpha = 5\%$ , distribution of XI MIA-2 class (pre-test) is normal.

#### 6. Median

No	Interval	F	Fk
1	34-42	3	3
2	43-51	6	9
<b>3</b>	<b>52-60</b>	<b>7</b>	16
4	61-69	5	21
5	70-78	4	25

Position of Me in the interval of classes is number 3, that:

$$Bb = 51.5$$

$$F = 9$$

$$fm = 7$$

$$i = 9$$

$$n = 25$$

$$1/2n = 12.5$$

So :

$$\begin{aligned}
 Me &= Bb + i \left( \frac{n/2 - F}{fm} \right) \\
 &= 51.5 + 9 \left( \frac{12.5 - 9}{7} \right) \\
 &= 51.5 + 9 (0.5) \\
 &= 51.5 + 4.5 \\
 &= 56
 \end{aligned}$$

## 7. Modus

No	Interval	F	Fk
1	34 – 42	3	3
2	43 – 51	6	9
3	<b>52 – 60</b>	<b>7</b>	16
4	61 – 69	5	21
5	70 – 78	4	25

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

$$L = 51.5$$

$$d_1 = 6$$

$$d_2 = 5$$

$$i = 9$$

So,

$$\begin{aligned}
 M_o &= 51.5 + \frac{6}{6+5} 9 \\
 &= 51.5 + 0.54 (9) \\
 &= 51.5 + 4.86 \\
 &= 56.36
 \end{aligned}$$

## 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

36	36	38	42	42	44	46	46	46	50
52	52	54	54	54	56	60	60	60	60
62	64	70	70	70					

2. High = 70

Low = 36

Range = High – Low

$$= 70 - 36$$

$$= 34$$

3. Total of Classes =  $1 + 3,3 \log (n)$   
 $= 1 + 3,3 \log (25)$   
 $= 1 + 3,3 (1.39)$   
 $= 1 + 4.58$   
 $= 5.58 / 5$

4. Length of Classes =  $\frac{\text{range}}{\text{total of class}} = \frac{34}{5} = 6.8 = 7$

5. Mean

Interval Class	F	X	x'	fx'	x' <sup>2</sup>	fx' <sup>2</sup>
36 – 42	5	40	2	10	4	20
43 – 49	4	47	1	4	1	4
<b>50 – 56</b>	<b>7</b>	<b>54</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
57 – 63	5	61	-1	-5	1	5
64 – 70	4	68	-2	-8	4	16
<i>i</i> = 7	25	-	-	1	-	45



$$\begin{aligned}
M_x &= M^1 + i \frac{\sum fx^1}{N} \\
&= 54 + 7 \left( \frac{1}{25} \right) \\
&= 54 + 7 (0.04) \\
&= 54 + 0.28 \\
&= 54.28
\end{aligned}$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum fx'^2}{n} - \left( \frac{\sum fx'}{n} \right)^2} \\
&= 7 \sqrt{\frac{45}{25} - \left( \frac{1}{25} \right)^2} \\
&= 7 \sqrt{1.8 - (0.04)^2} \\
&= 7 \sqrt{1.8 - 0.016} \\
&= 7 \sqrt{1.784} \\
&= 7 \times 1.33 \\
&= 9.31
\end{aligned}$$

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 <sub>h</sub>	f <sub>0</sub>	$\frac{(f_0-f_h)^2}{f_h}$
64 – 70	70.5	1.74	0.4591	0.12	3	4	0.33
	63.5	0.99	0.3389				
57 – 63	56.5	0.23	0.0910	0.24	6	5	0.16
50 – 56	49.5	-0.51	0.30503	0.21	5.25	7	0.58
43 – 49	42.5	-1.26	0.10383	0.20	5	4	0.2
36 – 42	35.5	-2.01	0.02222	0.08	2	5	4.5
X <sup>2</sup>							5.77

Based on the table above, the researcher found that  $x^2_{\text{count}} = 5.77$  while  $x^2_{\text{table}} = 9.488$ . Because  $x^2_{\text{count}} < x^2_{\text{table}}$  ( $5.77 < 9.488$ ) with degree of freedom (dk)  $= 5 - 1 = 4$  and significant level  $\alpha = 5\%$ , distribution of XI MIA-3 class (pre-test) is normal.

## 6. Median

No	Interval	F	Fk
1	36 – 42	5	5
2	43 – 49	4	<b>9</b>
<b>3</b>	<b>50 – 56</b>	<b>7</b>	16
4	57 – 63	5	21
5	64 – 70	4	25

Position of Me in the interval of classes is number 3, that:

$$Bb = 49.5$$

$$F = 9$$

$$fm = 7$$

$$i = 7$$

$$n = 25$$

$$1/2n = 12.5$$

So :

$$\begin{aligned}
 Me &= Bb + i \left( \frac{\frac{n}{2} - F}{fm} \right) \\
 &= 49.5 + 7 \left( \frac{12.5 - 9}{7} \right) \\
 &= 49.5 + 7 (0.5) \\
 &= 49.5 + 3.5 \\
 &= 53
 \end{aligned}$$

## 7. Modus

No	Interval	F	Fk
1	36 – 42	5	5
2	43 – 49	4	<b>9</b>
<b>3</b>	<b>50 – 56</b>	<b>7</b>	16
4	57 – 63	5	21
5	64 – 70	4	25

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

$$L = 49.5$$

$$d_1 = 4$$

$$d_2 = 5$$

$$i = 7$$

So,

$$\begin{aligned} M_o &= 49.5 + \frac{4}{4+5} 7 \\ &= 49.5 + \frac{4}{9} 7 \\ &= 49.5 + 0.44 (7) \\ &= 49.5 + 3.08 \\ &= 52.58 \end{aligned}$$

## RESULT OF NORMALITY TEST IN PRE TEST

1. The score of XI MIA-4 class in pre test from low score to high score:

30	30	36	40	40	46	46	48	54	56
56	56	56	56	60	60	60	62	64	64
70	70	70	74						

2. High = 74

Low = 30

Range = High – Low

= 74 - 30

= 44

3. Total of Classes =  $1 + 3,3 \log (n)$   
 $= 1 + 3,3 \log (24)$   
 $= 1 + 3,3 (1.38)$   
 $= 1 + 4.55$   
 $= 5.55 / 5$

4. Length of Classes =  $\frac{range}{totalofclass} = \frac{44}{5} = 8.8 = 9$

5. Mean

Interval Class	F	X	x'	fx'	x' <sup>2</sup>	fx' <sup>2</sup>
30 – 38	3	34	+2	6	4	12
39 – 47	4	43	+1	4	1	4
<b>48 – 56</b>	<b>7</b>	<b>52</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
57 – 65	6	61	-1	-6	1	6
66 – 74	4	70	-2	-8	4	16
<i>i</i> = 9	24	-	-	-4	-	38

$$\begin{aligned}
 Mx &= M^1 + i \frac{\sum fx^1}{N} \\
 &= 52 + 9 \left( \frac{-4}{24} \right) \\
 &= 52 + 9 (-0.16) \\
 &= 52 + (-1.44) \\
 &= 50.56
 \end{aligned}$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum f x_i'^2}{n} - \left(\frac{\sum f x_i'}{n}\right)^2} \\
&= 9 \sqrt{\frac{38}{24} - \left(\frac{-4}{24}\right)^2} \\
&= 9 \sqrt{1.58 - (-0.16)^2} \\
&= 9 \sqrt{1.58 - 0.025} \\
&= 9 \sqrt{1.55} \\
&= 9 \times 1.24 \\
&= 11.16
\end{aligned}$$

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 <sub>h</sub>	f <sub>0</sub>	$\frac{(f_0-f_h)^2}{f_h}$
66 – 74	74.5	2.14	0.4838	0.07	1.68	4	3.20
	65.5	1.33	0.4082				
57 – 65	65.5	1.33	0.4082	0.20	4.8	6	0.30
	56.5	0.53	0.2019				
48 – 56	56.5	0.53	0.2019	0.19	4.56	7	1.30
	47.5	-0.27	0.39358				
39 – 47	47.5	-0.27	0.39358	0.25	6	4	0.66
	38.5	-1.08	0.14007				
30 – 38	38.5	-1.08	0.14007	0.11	2.64	3	0.04
	29.5	-1.88	0.03005				
X <sup>2</sup>							5.5

Based on the table above, the researcher found that  $x^2_{\text{count}} = 5.5$  while  $x^2_{\text{table}} = 9.488$ . Because  $x^2_{\text{count}} < x^2_{\text{table}}$  ( $5.5 < 9.488$ ) with degree of freedom (dk) =  $5 - 1 = 4$  and significant level  $\alpha = 5\%$ , distribution of XI MIA-4 class (pre-test) is normal.

## 6. Median

No	Interval	F	Fk
1	30 – 38	3	3
2	39 – 47	4	<b>7</b>
3	<b>48 – 56</b>	<b>7</b>	14
4	57 – 65	6	20
5	66 – 74	4	24

Position of Me in the interval of classes is number 3, that:

$$Bb = 47.5$$

$$F = 7$$

$$fm = 7$$

$$i = 9$$

$$n = 24$$

$$1/2n=12$$

So :

$$\begin{aligned} Me &= Bb + i \left( \frac{n/2 - F}{fm} \right) \\ &= 47.5 + 9 \left( \frac{12-7}{7} \right) \\ &= 47.5 + 9 (0.71) \\ &= 47.5 + 6.39 \\ &= 53.89 \end{aligned}$$

## 7. Modus

No	Interval	F	Fk
1	30 – 38	3	3
2	39 – 47	4	7
3	<b>48 – 56</b>	<b>7</b>	14
4	57 – 65	6	20
5	66 – 74	5	24

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

$$L = 47.5$$

$$d_1 = 4$$

$$d_2 = 6$$

$$i = 9$$

So,

$$\begin{aligned} M_o &= 47.5 + \frac{4}{4+6} 9 \\ &= 47.5 + 0.40 (9) \\ &= 47.5 + 3.60 \\ &= 51.10 \end{aligned}$$

## Appendix 18

### HOMOGENEITY TEST (PRE-TEST)

Calculation of parameter to get variant of the first class as experimental class sample and variant of the second class as control class sample are used homogeneity test by using formula:

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

Hypotheses:

$$H_0 : \sigma_1^2 = \sigma_2^2$$

$$H_1 : \sigma_1^2 \neq \sigma_2^2$$

A. Variant of XI MIA-2 class is:

No	Xi	Xi <sup>2</sup>
1.	34	1156
2.	36	1296
3.	42	1764
4.	44	1936
5.	46	2116
6.	48	2304
7.	50	2500
8.	50	2500
9.	50	2500
10.	52	2704
11.	54	2916
12.	56	3136
13.	56	3136
14.	56	3136
15.	56	3136
16.	60	3600
17.	62	3844
18.	64	4096
19.	68	4624
20.	68	4624
21.	68	4624
22.	72	5184
23.	72	5184

24.	78	6084
25.	78	6084
<b>Total</b>	<b>1420</b>	<b>84184</b>

$$n = 25$$

$$\sum xi = 1420$$

$$\sum xi^2 = 84184$$

So:

$$\begin{aligned}
 S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\
 &= \frac{25(84184) - (1420)^2}{25(25-1)} \\
 &= \frac{2104600 - 2016400}{25(24)} \\
 &= \frac{88200}{600} \\
 &= 147
 \end{aligned}$$

B. Variant of XI MIA-3 class is:

<b>NO</b>	<b>Xi</b>	<b>Xi<sup>2</sup></b>
1.	36	1296
2.	36	1296
3.	38	1444
4.	42	1764
5.	42	1764
6.	44	1936
7.	46	2116
8.	46	2116
9.	46	2116
10.	50	2500
11.	52	2704
12.	52	2704
13.	54	2916
14.	54	2916
15.	54	2916
16.	56	3136
17.	60	3600
18.	60	3600
19.	60	3600
20.	60	3600
21.	62	3844
22.	64	4096
23.	70	4900



24.	70	4900
25.	70	4900
<b>Total</b>	<b>1324</b>	<b>72680</b>

$$n = 25$$

$$\sum xi = 1324$$

$$\sum xi^2 = 72680$$

So:

$$\begin{aligned}
 S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\
 &= \frac{25(72680) - (1324)^2}{25(25-1)} \\
 &= \frac{1817000 - 1752976}{25(24)} \\
 &= \frac{64024}{600} \\
 &= 106
 \end{aligned}$$

C. Variant of XI MIA-4 class is:

<b>No</b>	<b>Xi</b>	<b>Xi<sup>2</sup></b>
1.	30	900
2.	30	900
3.	36	1296
4.	40	1600
5.	40	1600
6.	46	2116
7.	46	2116
8.	48	2304
9.	54	2916
10.	56	3136
11.	56	3136
12.	56	3136
13.	56	3136
14.	56	3136
15.	60	3600
16.	60	3600
17.	60	3600
18.	62	3844
19.	64	4096
20.	64	4096
21.	70	4900

22.	70	4900
23.	70	4900
24.	74	5476
<b>Total</b>	<b>1304</b>	<b>74440</b>

$$n = 24$$

$$\sum xi = 1304$$

$$\sum xi^2 = 7440$$

So:

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

$$= \frac{24(74440) - (1304)^2}{24(24-1)}$$

$$= \frac{1786560 - 1700416}{24(23)}$$

$$= \frac{86144}{552}$$

$$= 156.05$$

The formula was used to test hypothesis was:

#### 1. XI MIA-2 and XI MIA-3

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

So:

$$F = \frac{147}{106}$$

$$= 1.38$$

After doing the calculation, researcher found that  $F_{\text{count}} = 1.38$  with  $\alpha 5\%$

and  $dk = 24$  from the distribution list F, researcher found that  $F_{\text{table}} = 2.064$ , cause

$F_{\text{count}} < F_{\text{table}}$  ( $1.38 < 2.069$ ). 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

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

So:

$$F = \frac{156.05}{147}$$
$$= 1.06$$

After doing the calculation, researcher found that  $F_{\text{count}} = 1.06$  with  $\alpha 5\%$  and  $dk = 24$  and  $23$  from the distribution list  $F$ , researcher found that  $F_{\text{table}} = 2.064$  and  $2.069$ , cause  $F_{\text{count}} < F_{\text{table}}$  ( $1.06 < 2.064$  and  $2.069$ ). 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

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

So:

$$F = \frac{156.05}{106}$$
$$= 1.47$$

After doing the calculation, researcher found that  $F_{\text{count}} = 1.47$  with  $\alpha 5\%$  and  $dk = 24$  and  $23$  from the distribution list  $F$ , researcher found that  $F_{\text{table}} = 2.064$  and  $2.069$ , cause  $F_{\text{count}} < F_{\text{table}}$  ( $1.47 < 2.064$  and  $2.069$ ). 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

#### 3. Score of Experimental Class Post Test using Know, Want to know, Learned (KWL) Strategy

No	The Initial Name of Students (n)	Score Post-Test
26.	AHS	76
27.	AS	86
28.	AIP	56
29.	AAH	72
30.	AL	90
31.	ATN	90
32.	DKL	60
33.	DWS	90
34.	EFH	82
35.	HH	70
36.	HN	56
37.	ISL	60
38.	IM	76
39.	LD	76
40.	MSL	66
41.	MSL	82
42.	NH	72
43.	PJH	66
44.	SAH	80
45.	SRP	8
46.	SPN	70
47.	TH	60
48.	TRM	80
49.	YA	70
50.	YFH	60
Total		1862

#### **4. Score of Control Class Post Test**

<b>No</b>	<b>The Initial Name of Students (n)</b>	<b>Score Post-Test</b>
<b>26.</b>	<b>AMAH</b>	<b>60</b>
<b>27.</b>	<b>DSS</b>	<b>70</b>
<b>28.</b>	<b>EJH</b>	<b>70</b>
<b>29.</b>	<b>JS</b>	<b>80</b>
<b>30.</b>	<b>MBN</b>	<b>70</b>
<b>31.</b>	<b>MRN</b>	<b>80</b>
<b>32.</b>	<b>MZH</b>	<b>52</b>
<b>33.</b>	<b>MR</b>	<b>72</b>
<b>34.</b>	<b>NA</b>	<b>60</b>
<b>35.</b>	<b>NKH</b>	<b>60</b>
<b>36.</b>	<b>NML</b>	<b>46</b>
<b>37.</b>	<b>PKR</b>	<b>74</b>
<b>38.</b>	<b>RH</b>	<b>54</b>
<b>39.</b>	<b>RA</b>	<b>70</b>
<b>40.</b>	<b>RD</b>	<b>50</b>
<b>41.</b>	<b>RFH</b>	<b>40</b>
<b>42.</b>	<b>SMP</b>	<b>60</b>
<b>43.</b>	<b>SERH</b>	<b>56</b>
<b>44.</b>	<b>SMS</b>	<b>36</b>
<b>45.</b>	<b>THD</b>	<b>80</b>
<b>46.</b>	<b>UKS</b>	<b>60</b>
<b>47.</b>	<b>WDD</b>	<b>80</b>
<b>48.</b>	<b>WGRH</b>	<b>60</b>
<b>49.</b>	<b>ZUMH</b>	<b>60</b>
<b>50.</b>	<b>ZH</b>	<b>56</b>
<b>Total</b>		<b>1559</b>

## Appendix 20

### RESULT OF NORMALITY TEST IN POST TEST

#### A. Result of Normality Test of XI MIA-2 in Post Test

1. The score of XI TO-1 class in post test from low score to high score:

56	60	60	66	66	66	66	70	70	70
74	74	76	76	76	76	80	80	80	82
82	86	90	90	90					

2. High = 90

Low = 56

Range = High – Low

$$= 90 - 56$$

$$= 34$$

3. Total of Classes =  $1 + 3,3 \log (n)$   
 $= 1 + 3,3 \log (29)$   
 $= 1 + 3,3 (1.46)$   
 $= 1 + 4.81$   
 $= 5.81 / 5$

4. Length of Classes =  $\frac{range}{total\ of\ class} = \frac{34}{5} = 6.8 = 7$

5. Mean

Interval Class	F	X	x'	fx'	x' <sup>2</sup>	fx' <sup>2</sup>
84 – 90	4	87	+2	8	4	16
77 – 83	5	80	+1	5	1	5
<b>70 – 76</b>	<b>9</b>	<b>73</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
63 – 69	4	66	-1	-4	1	4
56 – 62	3	59	-2	-6	4	12
<i>i</i> = 7	25	-	-	3	-	37

$$\begin{aligned}
M_x &= M^1 + i \frac{\sum fx^1}{N} \\
&= 73 + 7 \left( \frac{3}{25} \right) \\
&= 73 + 7 (0.12) \\
&= 73 + (0.84) \\
&= 73.84
\end{aligned}$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum fx'^2}{n} - \left( \frac{\sum fx'}{n} \right)^2} \\
&= 7 \sqrt{\frac{36}{25} - \left( \frac{3}{25} \right)^2} \\
&= 7 \sqrt{1.44 - (0.12)^2} \\
&= 7 \sqrt{1.44 - 0.014} \\
&= 7 \sqrt{1.426} \\
&= 7 \times 1.19 \\
&= 8.33
\end{aligned}$$

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 <sub>h</sub>	f <sub>0</sub>	$\frac{(f_0-f_h)^2}{f_h}$
84 – 90	90.5	2.00	0.4772	0.10	2.5	4	0.90
	83.5	1.15	0.3749				
77 – 83	76.5	0.31	0.1217	0.25	6.25	5	0.25
70 – 76	69.5	-0.52	0.30153	0.17	4.25	9	5.30
63 – 69	62.5	-1.36	0.08691	0.21	5.25	4	0.29
56 – 62	55.5	-2.20	0.01390	0.07	1.75	3	0.89
X <sup>2</sup>							7.63

Based on the table above, the researcher found that  $x^2_{\text{count}} = 7.63$  while  $x^2_{\text{table}} = 9.488$ . Because  $x^2_{\text{count}} < x^2_{\text{table}}$  ( $7.63 < 9.488$ ) with degree of freedom (dk)  $= 5 - 1 = 4$  and significant level  $\alpha = 5\%$ , distribution of XI MIA-2 class (post-test) is normal.

## 6. Median

No	Interval	F	Fk
1.	56 – 62	3	3
2.	63 – 69	4	<b>7</b>
3.	<b>70 – 76</b>	<b>9</b>	16
4.	77 – 83	5	21
5.	84 – 90	4	25

Position of Me in the interval of classes is number 3, that:

$$Bb = 69.5$$

$$F = 7$$

$$fm = 9$$

$$i = 7$$

$$n = 25$$

$$1/2n = 12.5$$

So :

$$\begin{aligned}
 Me &= Bb + i \left( \frac{n/2 - F}{fm} \right) \\
 &= 69.5 + 7 \left( \frac{12.5 - 7}{9} \right) \\
 &= 69.5 + 7 (0.61) \\
 &= 69.5 + 4.27 \\
 &= 73.77
 \end{aligned}$$

## 7. Modus

No	Interval	F	Fk
1.	56 – 62	3	7
2.	63 – 69	4	<b>7</b>
3.	<b>70 – 76</b>	<b>9</b>	16
4.	77 – 83	5	21
5.	84 – 90	4	25



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

$$L = 69.5$$

$$d_1 = 4$$

$$d_2 = 5$$

$$i = 7$$

So,

$$\begin{aligned} M_o &= 69.5 + \frac{4}{4+5} 7 \\ &= 69.5 + 0.44 (7) \\ &= 69.5 + 3.08 \\ &= 72.58 \end{aligned}$$

## B. Result of Normality Test of XI MIA-3 in Post-Test

1. The score of XI MIA-3 class in post test from low score to high score:

36	40	46	50	54	54	56	56	60	60
60	60	60	60	64	70	70	70	70	74
74	80	80	80	80					

2. High = 80

Low = 36

Range = High – Low

$$= 80 - 36$$

$$= 44$$

3. Total of Classes =  $1 + 3,3 \log (n)$   
 $= 1 + 3,3 \log (30)$   
 $= 1 + 3,3 (1.47)$   
 $= 1 + 4.85$   
 $= 5.85 / 5$

4. Length of Classes =  $\frac{range}{total\ of\ class} = \frac{44}{5} = 8.8 = 9$

5. Mean

Interval Class	F	X	x'	fx'	x' <sup>2</sup>	fx' <sup>2</sup>
72 – 80	6	76	+2	12	4	24
63 – 71	5	67	+1	5	1	5
54 – 62	<b>8</b>	<b>58</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
45 – 53	4	49	-1	-4	1	4
36 – 44	2	40	-2	-4	4	8
<i>i</i> = 9	25	-	-	9	-	41

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

$$= 58 + 9 \left( \frac{9}{25} \right)$$

$$= 58 + 9 (0.36)$$

$$= 58 + (3.24)$$

$$= 61.24$$

$$\begin{aligned}
SD_t &= i \sqrt{\frac{\sum fx'^2}{n} - \left(\frac{\sum fx'}{n}\right)^2} \\
&= 9 \sqrt{\frac{41}{25} - \left(\frac{9}{25}\right)^2} \\
&= 9 \sqrt{1.64 - (0.36)^2} \\
&= 9 \sqrt{1.7 - 0.12} \\
&= 9 \sqrt{1.58} \\
&= 9 \times 1.25 \\
&= 11.25
\end{aligned}$$

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 <sub>h</sub>	f <sub>0</sub>	$\frac{(f_0-f_h)^2}{f_h}$
72 – 80	80.5	1.71	0.4564				
	71.5	0.91	0.3186	0.13	3.25	6	2.32
63 – 71	62.5	0.11	0.0438	0.27	6.75	5	0.45
54 – 62	53.5	-0.68	0.24825	0.20	5	8	1.8
45 – 53	44.5	-1.48	0.06944	0.17	4.25	4	0.014
36 – 44	35.5	-2.28	0.01130	0.05	1.25	2	0.45
X <sup>2</sup>							5.034

Based on the table above,the reseracher found that  $x^2_{count}= 5.034$  while  $x^2_{table}= 9.488$ . Because  $x^2_{count} < x^2_{table}$  ( $5.034 < 9.488$ ) with degree of freedom (dk) = 5–1 = 4 and significant level  $\alpha = 5\%$ , distribution of XI MIA-3 class (post-test) is normal.

## 6. Median

No	Interval	F	Fk
1	36 – 44	2	2
2	45 – 53	4	<b>6</b>
<b>3</b>	<b>54 – 62</b>	<b>8</b>	14
4	63 – 71	5	19
5	72 – 80	6	25

Position of Me in the interval of classes is number 3, that:

$$Bb = 53.5$$

$$F = 6$$

$$fm = 8$$

$$i = 9$$

$$n = 25$$

$$1/2n = 12.5$$

So :

$$\begin{aligned}
 Me &= Bb + i \left( \frac{n/2 - F}{fm} \right) \\
 &= 53.5 + 9 \left( \frac{12.5 - 6}{8} \right) \\
 &= 53.5 + 9 (0.81) \\
 &= 53.5 + 7.29 \\
 &= 60.79
 \end{aligned}$$

## 7. Modus

No	Interval	F	Fk
1	36 – 44	2	2
2	45 – 53	4	<b>6</b>
<b>3</b>	<b>54 – 62</b>	<b>8</b>	14
4	63 – 71	5	19
5	72 – 80	6	25

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

$$L = 53.5$$

$$d_1 = 4$$

$$d_2 = 5$$

$$i = 9$$

So,

$$\begin{aligned} M_o &= 53.5 + \frac{4}{4+5} 9 \\ &= 53.5 + 0.44 (9) \\ &= 53.5 + 3.96 \\ &= 57.46 \end{aligned}$$

## Appendix 21

### HOMOGENEITY TEST (POST-TEST)

Calculation of parameter to get variant of the first class as experimental class sample by using mind mapping technique and variant of the second class as control class sample by using conventional teaching are used homogeneity test by using formula:

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

Hypotheses:

$$H_0 : \sigma_1^2 = \sigma_2^2$$

$$H_1 : \sigma_1^2 \neq \sigma_2^2$$

A. Variant of the XI MIA-2 Class is:

No	Xi	Xi <sup>2</sup>
1	56	3136
2	60	3600
3	60	3600
4	66	4356
5	66	4356
6	66	4356
7	66	4356
8	70	4900
9	70	4900
10	70	4900
11	73	5329
12	73	5329
13	76	5776
14	76	5776
15	76	5776
16	76	5776
17	80	6400
18	80	6400
19	80	6400
20	83	6889
21	83	6889
22	86	7396
23	90	8100
24	90	8100
25	90	8100

Total	1862	140896
-------	------	--------

$$n = 25$$

$$\sum xi = 1862$$

$$\sum_{xi}^2 = 140896$$

So:

$$\begin{aligned} S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\ &= \frac{25(140896) - (1862)^2}{25(25-1)} \\ &= \frac{3522400 - 3467044}{25(24)} \\ &= \frac{55356}{600} \\ &= 92.26 \end{aligned}$$

#### B. Variant of the XI MIA-3

No	Xi	Xi <sup>2</sup>
1	36	1296
2	40	1600
3	46	2116
4	50	2500
5	53	2809
6	53	2809
7	56	3136
8	56	3136
9	60	3600
10	60	3600
11	60	3600
12	60	3600
13	60	3600
14	60	3969
15	63	3969
16	70	4900
17	70	4900
18	70	4900
19	70	4900
20	73	5329
21	73	5329
22	80	6400
23	80	6400
24	80	6400

25	80	6400
Total	1559	100829

$$\begin{aligned}
 n &= 25 \\
 \sum xi &= 1559 \\
 \sum_{xi}^2 &= 100829
 \end{aligned}$$

So:

$$\begin{aligned}
 S^2 &= \frac{n\sum xi^2 - (\sum xi)^2}{n(n-1)} \\
 &= \frac{25(100829) - (1559)^2}{25(25-1)} \\
 &= \frac{2520725 - 2430481}{25(24)} \\
 &= \frac{90244}{600} \\
 &= 150.40
 \end{aligned}$$

The Formula was used to test hypothesis was:

1. XI MIA-2 and XI MIA-3 :

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

So:

$$\begin{aligned}
 F &= \frac{150.40}{92.26} \\
 &= 1.63
 \end{aligned}$$

After doing the calculation, researcher found that  $F_{\text{count}} = 1.63$  with  $\alpha 5\%$  and  $dk = 24$  and  $24$  from the distribution list  $F$ , researcher found that  $F_{\text{table}} = 2.069$ , cause  $F_{\text{count}} < F_{\text{table}}$  ( $1.63 < 2.069$ ). 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.



## Appendix 22

### **T<sub>test</sub> OF THE BOTH AVERAGES IN PRE-TEST**

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

that:

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

So:

$$\begin{aligned} S &= \sqrt{\frac{(25-1)147 + (25-2)106}{25+25-2}} \\ &= \sqrt{\frac{24(147) + 23(106)}{48}} \\ &= \sqrt{\frac{3528 + 2438}{48}} \\ &= \sqrt{\frac{5966}{48}} \\ &= \sqrt{124.29} \\ &= 11.14 \end{aligned}$$

So:

$$\begin{aligned} t &= \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \\ t &= \frac{55.64 - 54.28}{11.14 \sqrt{\frac{1}{25} + \frac{1}{25}}} \\ &= \frac{1.36}{11.14 \sqrt{0.04 + 0.04}} \\ &= \frac{1.37}{11.14 (0.28)} \\ &= \frac{1.36}{3.11} \\ &= 0.43 \end{aligned}$$

Based on researcher calculation result of the homogeneity test of the both averages, researcher found that  $t_{\text{count}} = 0.43$  with opportunity  $(1 - \alpha) = 1 - 5\% = 95\%$  and  $dk = n_1 + n_2 - 2 = 25 + 25 - 2 = 48$ , researcher found that  $t_{\text{table}} = 2.021$ , cause  $t_{\text{count}} < t_{\text{table}}$  ( $0.43 < 2.021$ ). So,  $H_0$  was rejected, it means no difference the average between the first class as experimental class and the second class as experiment class in this research.

## Appendix 23

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

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

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

So:

$$\begin{aligned} S &= \sqrt{\frac{(25-1) 92.26 + (25-2)150.40}{25+25-2}} \\ &= \sqrt{\frac{24 (92.26) + 23 (150.40)}{48}} \\ &= \sqrt{\frac{2214.24 + 3459.20}{48}} \\ &= \sqrt{\frac{5673.44}{48}} \\ &= \sqrt{118.19} \\ &= 10.87 \end{aligned}$$

So:

$$\begin{aligned} t &= \frac{\bar{X}_1 - \bar{X}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \\ t &= \frac{73.84 - 61.24}{10.87 \sqrt{\frac{1}{25} + \frac{1}{25}}} \\ &= \frac{12.6}{10.87 \sqrt{0.04 + 0.04}} \end{aligned}$$

$$\begin{aligned}
&= \frac{12.6}{10.87 (0,28)} \\
&= \frac{12.6}{3.04} \\
&= 4.14
\end{aligned}$$

Based on researcher calculation result of the homogeneity test of the both averages, researcher found that  $t_{\text{count}} = 4.14$  with opportunity  $(1 - \alpha) = 1 - 5\% = 95\%$  and  $dk = n_1 + n_2 - 2 = 25 + 25 - 2 = 48$ , researcher found that  $t_{\text{table}} = 2.021$ , cause  $t_{\text{count}} > t_{\text{table}}$  ( $4.14 > 2.021$ ). So,  $H_a$  was accepted, it means there was the difference average between the first class as experimental class and the second class as experiment class in this research.

**APPENDIX 24****Chi-Square Table**

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

## APPENDIX 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	0.0000 5	0.0000 5	0.0000 4	0.0000 4	0.0000 4	0.0000 4	0.0000 4	0.0000 4	0.0000 3	0.0000 3
- 3. 8	0.0000 7	0.0000 7	0.0000 7	0.0000 6	0.0000 6	0.0000 6	0.0000 6	0.0000 5	0.0000 5	0.0000 5
- 3. 7	0.0001 1	0.0001 0	0.0001 0	0.0001 0	0.0000 9	0.0000 9	0.0000 8	0.0000 8	0.0000 8	0.0000 8
- 3. 6	0.0001 6	0.0001 5	0.0001 5	0.0001 4	0.0001 4	0.0001 3	0.0001 3	0.0001 2	0.0001 2	0.0001 1
- 3. 5	0.0002 3	0.0002 2	0.0002 2	0.0002 1	0.0002 0	0.0001 9	0.0001 9	0.0001 8	0.0001 7	0.0001 7
- 3. 4	0.0003 4	0.0003 2	0.0003 1	0.0003 0	0.0002 9	0.0002 8	0.0002 7	0.0002 6	0.0002 5	0.0002 4
- 3. 3	0.0004 8	0.0004 7	0.0004 5	0.0004 3	0.0004 2	0.0004 0	0.0003 9	0.0003 8	0.0003 6	0.0003 5
- 3. 2	0.0006 9	0.0006 6	0.0006 4	0.0006 2	0.0006 0	0.0005 8	0.0005 6	0.0005 4	0.0005 2	0.0005 0
- 3. 1	0.0009 7	0.0009 4	0.0009 0	0.0008 7	0.0008 4	0.0008 2	0.0007 9	0.0007 6	0.0007 4	0.0007 1
- 3. 0	0.0013 5	0.0013 1	0.0012 6	0.0012 2	0.0011 8	0.0011 4	0.0011 1	0.0010 7	0.0010 4	0.0010 0
- 2. 9	0.0018 7	0.0018 1	0.0017 5	0.0016 9	0.0016 4	0.0015 9	0.0015 4	0.0014 9	0.0014 4	0.0013 9
- 2. 8	0.0025 6	0.0024 8	0.0024 0	0.0023 3	0.0022 6	0.0021 9	0.0021 2	0.0020 5	0.0019 9	0.0019 3
- 2. 7	0.0034 7	0.0033 6	0.0032 6	0.0031 7	0.0030 7	0.0029 8	0.0028 9	0.0028 0	0.0027 2	0.0026 4
- 2. 6	0.0046 6	0.0045 3	0.0044 0	0.0042 7	0.0041 5	0.0040 2	0.0039 1	0.0037 9	0.0368 0	0.0035 7
- 2. 5	0.0062 1	0.0060 4	0.0058 7	0.0057 0	0.0055 4	0.0053 9	0.0052 3	0.0050 8	0.0049 4	0.0048 0
- 2. 4	0.0082 0	0.0079 8	0.0077 6	0.0075 5	0.0073 4	0.0071 4	0.0069 5	0.0067 6	0.0065 7	0.0063 9

<b>4</b>										
- <b>2.</b> <b>3</b>	0.0107 2	0.0104 4	0.0101 7	0.0099 0	0.0096 4	0.0093 9	0.0091 4	0.0088 9	0.0086 6	0.0084 2
- <b>2.</b> <b>2</b>	0.0139 0	0.0135 5	0.0132 1	0.0128 7	0.0125 5	0.0122 2	0.0119 1	0.0116 0	0.0113 0	0.0110 1
- <b>2.</b> <b>1</b>	0.0178 6	0.0174 3	0.0170 0	0.0165 9	0.0161 8	0.0157 8	0.0153 9	0.0150 0	0.0146 3	0.0142 6
- <b>2.</b> <b>0</b>	0.0227 5	0.0222 2	0.0216 9	0.0211 8	0.0206 8	0.0201 8	0.0197 0	0.0192 3	0.0187 6	0.0183 1
- <b>1.</b> <b>9</b>	0.0287 2	0.0280 7	0.0274 3	0.0268 0	0.0261 9	0.0255 9	0.0250 0	0.0244 2	0.0238 5	0.0233 0
- <b>1.</b> <b>8</b>	0.0359 3	0.0351 5	0.0343 8	0.0336 2	0.0328 8	0.0321 6	0.0314 4	0.0307 4	0.0300 5	0.0293 8
- <b>1.</b> <b>7</b>	0.0445 7	0.0436 3	0.0427 2	0.0418 2	0.0409 3	0.0400 6	0.0392 0	0.0383 6	0.0375 4	0.0367 3
- <b>1.</b> <b>6</b>	0.0548 0	0.0537 0	0.0526 2	0.0515 5	0.0505 0	0.0494 7	0.0484 6	0.0474 6	0.0464 8	0.0455 1
- <b>1.</b> <b>5</b>	0.0668 1	0.0655 2	0.0642 6	0.0630 1	0.0617 8	0.0605 7	0.0593 8	0.0582 1	0.0570 5	0.0559 2
- <b>1.</b> <b>4</b>	0.0807 6	0.0792 7	0.0778 0	0.0763 6	0.0749 3	0.0735 3	0.0721 5	0.0707 8	0.0694 4	0.0681 1
- <b>1.</b> <b>3</b>	0.0968 0	0.0951 0	0.0934 2	0.0917 6	0.0901 2	0.0885 1	0.0869 1	0.0853 4	0.0837 9	0.0822 6
- <b>1.</b> <b>2</b>	0.1150 7	0.1131 4	0.1112 3	0.1093 5	0.1074 9	0.1056 5	0.1038 3	0.1020 4	0.1002 7	0.0985 3
- <b>1.</b> <b>1</b>	0.1356 7	0.1335 0	0.1313 6	0.1292 4	0.1271 4	0.1250 7	0.1230 2	0.1210 0	0.1190 0	0.1170 2
- <b>1.</b> <b>0</b>	0.1586 6	0.1562 5	0.1538 6	0.1515 1	0.1491 7	0.1468 6	0.1445 7	0.1423 1	0.1400 7	0.1378 6
- <b>0.</b> <b>9</b>	0.1840 6	0.1814 1	0.1787 9	0.1761 9	0.1736 1	0.1710 6	0.1685 3	0.1660 2	0.1635 4	0.1610 9
- <b>0.</b> <b>8</b>	0.2118 6	0.2089 7	0.2061 1	0.2032 7	0.2004 5	0.1976 6	0.1948 9	0.1921 5	0.1894 3	0.1867 3
- <b>0.</b> <b>7</b>	0.2419 6	0.2388 5	0.2357 6	0.2327 0	0.2296 5	0.2266 3	0.2236 3	0.2206 5	0.2177 0	0.2147 6

- 0. 6	0.2742 5	0.2709 3	0.2676 3	0.2643 5	0.2610 9	0.2578 5	0.2546 3	0.2514 3	0.2482 5	0.2451 0
- 0. 5	0.3085 4	0.3050 3	0.3015 3	0.2980 6	0.2946 0	0.2911 6	0.2877 4	0.2843 4	0.2809 6	0.2776 0
- 0. 4	0.3445 8	0.3409 0	0.3372 4	0.3336 0	0.3299 7	0.3263 6	0.3227 6	0.3191 8	0.3156 1	0.3120 7
- 0. 3	0.3820 9	0.3782 8	0.3744 8	0.3707 0	0.3669 3	0.3631 7	0.3594 2	0.3556 9	0.3519 7	0.3482 7
- 0. 2	0.4207 4	0.4168 3	0.4129 4	0.4090 5	0.4051 7	0.4012 9	0.3974 3	0.3935 8	0.3897 4	0.3859 1
- 0. 1	0.4601 7	0.4562 0	0.4522 4	0.4482 8	0.4443 3	0.4403 8	0.4364 4	0.4325 1	0.4285 8	0.4246 5
- 0. 0	0.5000 0	0.4960 1	0.4920 2	0.4880 3	0.4840 5	0.4800 6	0.4760 8	0.4721 0	0.4681 2	0.4641 4



**Z-Table**

<b>z</b>	<b>0.00</b>	<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.04</b>	<b>0.05</b>	<b>0.06</b>	<b>0.07</b>	<b>0.08</b>	<b>0.09</b>
<b>0.0</b>	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
<b>0.1</b>	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
<b>0.2</b>	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
<b>0.3</b>	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
<b>0.4</b>	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
<b>0.5</b>	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
<b>0.6</b>	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
<b>0.7</b>	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
<b>0.8</b>	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
<b>0.9</b>	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
<b>1.0</b>	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
<b>1.1</b>	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
<b>1.2</b>	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
<b>1.3</b>	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
<b>1.4</b>	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
<b>1.5</b>	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
<b>1.6</b>	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
<b>1.7</b>	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
<b>1.8</b>	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
<b>1.9</b>	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
<b>2.0</b>	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
<b>2.1</b>	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
<b>2.2</b>	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
<b>2.3</b>	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
<b>2.4</b>	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
<b>2.5</b>	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
<b>2.6</b>	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
<b>2.7</b>	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
<b>2.8</b>	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981

[illegible]

## APPENDIX 26

### Percentage Points of the t Distribution

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

DOCUMENTATION













KEMENTERIAN AGAMA  
**INSTITUT AGAMA ISLAM NEGERI PADANGSIDIMPUAN**  
**FAKULTAS TARBIYAH DAN ILMU KEGURUAN**

Jalan T. Rizal Nurdin Km. 4,5Sihitang 22733  
Telephon 0634- 22080 Faximile 0634-24022

nomor : 12/In.14/E.6a/PP.00.9/29/2016  
fat : Biasa  
amp : -  
erihal : Pengesahan Judul dan Pembimbing Skripsi

Padangsidimpuan, / September 2016

Kepada Yth Bapak/Ibu;

1. Drs. 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 sidang bersama tim pengkaji 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:

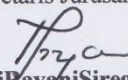
Nama/Nim : Robiatul Adawiyah Hasibuan/12 340 0067  
Jurusan : Tadris Bahasa Inggris-2  
Judul Skripsi : **THE EFFECT OF KNOW, WANT TO KNOW, LEARNED (KWL) STRATEGY TO STUDENTS' READING COMPREHENSION IN EXPOSITORY TEXT AT GRADE XI SMAN 1 BARUMUN**

Demikian surat ini disampaikan, atas perhatian dan kesediaan Bapak/Ibu kami ucapkan terima kasih.

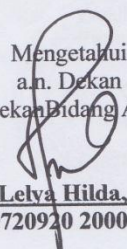
Ketua Jurusan Tadris Bahasa Inggris

Sekretaris Jurusan Bahasa Inggris

  
**Rayendriani Fahmei Lubis, M. Ag**  
NIP. 19710510 200003 2 001

  
**Fitri Ravani Siregar, M. Hum**  
NIP. 19820731 200912 2 004

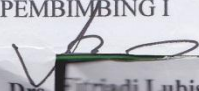
Mengetahui  
a.n. Dekan  
Wakil Dekan Bidang Akademik

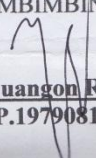
  
**Dr. Lelva Hilda, M.Si**  
NIP. 19720920 200003 2 002

**Pernyataan Kesediaan Sebagai Pembimbing**

BERSEDIA/TIDAK BERSEDIA  
PEMBIMBING I

BERSEDIA/TIDAK BERSEDIA  
PEMBIMBING II

  
**Drs. Fitriadi Lubis, M. Pd**  
NIP. 19620917 199203 1 002

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



**KEMENTERIAN AGAMA REPUBLIK INDONESIA**  
**INSTITUT AGAMA ISLAM NEGERI PADANGSIDIMPUAN**  
**FAKULTAS TARBIYAH DAN ILMU KEGURUAN**

Jalan T. Rizal Nurdin Km. 4,5 Sihitang 22733  
Telepon (0634) 22080 Faximile (0634) 24022

Nomor : B - 2177 /In.14/E.4c/TL.00/11/2017  
Hal : Izin Penelitian  
Penyelesaian Skripsi.

20 November 2017

Yth. Kepala SMA N 1 Barumun  
Kabupaten Padang Lawas

Dengan hormat, Dekan Fakultas Tarbiyah dan Ilmu Keguruan Institut Agama Islam Negeri Padangsidimpuan menerangkan bahwa :

Nama : Robiatul Adawiyah Hasibuan,  
NIM : 12 340 0067  
Fakultas/Jurusan : Tarbiyah dan Ilmu Keguruan/TBI  
Alamat : Sihitang

adalah benar Mahasiswa IAIN Padangsidimpuan yang sedang menyelesaikan Skripsi dengan Judul "The Effect of Know, Want to Know, Learned (KWL) Strategy on Students' Reading Comprehension in Expository Text at Grade XI in SMA N 1 Barumun". 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 Admimistrasi Umum,  
Perencanaan dan Keuangan

  
Drs. Sahadid Sasution, M.Pd.  
NIP. 19620728 199403 1 002





PEMERINTAH PROVINSI SUMATERA UTARA  
DINAS PENDIDIKAN  
**SMA NEGERI 1 BARUMUN**

NPSN: 10207069

NSS: 301072301001

Alamat: Jl. KihajarDewantara No. 43 Sibuhuan Telp. (0636) 7021503 Fax.(0636) 7021503

Email: [smansabarumun@gmail.com](mailto:smansabarumun@gmail.com)

**SURAT KETERANGAN**

Nomor : 421.4 / 300 / SMA / 2017

Yang bertanda tangan dibawah ini Kepala Sekolah SMA Negeri 1 Barumun Kecamatan Barumun Kabupaten Padang Lawas Provinsi Sumatera Utara Menerangkan bahwa:

Nama : **ROBIATUL ADAWIYAH HASIBUAN**  
NIM : 123400067  
Program Studi : Pendidikan Bahasa Inggris  
Fakultas : Tarbiyah dan Ilmu Keguruan/TBI

Nama tersebut di atas telah melaksanakan penelitian / pengambilan data di SMA Negeri 1 Barumun mulai tanggal 23 November s/d 02 Desember 2017 untuk skripsinya yang berjudul “ **THE EFFECT OF KNOW, WANT TO KNOW, LEARNED (KWL) STRATEGY ON STUDENTS’ READING COMPREHENSION IN EXPOSITORY TEXT AT GRADE XI IN SMA N 1 BARUMUN**”.

Demikian Surat Keterangan ini diperbuat dengan sebenarnya agar dapat dipergunakan seperlunya.



Sibuhuan, 02 Desember 2017

Kepala Sekolah,

**IKHSANUL NASIR HSB,S.Ag.MM**

NIP. 19720426 200212 1 002