THE EFFECT OF PEGWORDS METHOD ON STUDENTS' VOCABULARY MASTERY AT GRADE VII OF SMP N 2 PADANGSIDIMPUAN

A THESIS

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

By:

CICI HAFSAH SIPAHUTAR
Reg. No. 11 340 0051

ENGLISH EDUCATION DEPARTMENT

TARBIYAH AND TEACHER TRAINING FACULTY
STATE INSTITUTE FOR ISLAMIC STUDIES
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2015

LETTER OF AGREEMENT

Term : Thesis
a.n. Cici Hafsah Sipahutar
Item : 7 (Seven) Exemplars

Padangsidimpuan, 19th October 2015
To : Dean of Tarbiyah and Teacher Training Faculty
in Padangsidimpuan

Assalamu'alaikum Wr. Wb.

After reading, studying and giving advice for necessary revision on thesis belongs to **Cici Hafsah Sipahutar**, entitled **"The Effect of Pegwords Method on Students' Vocabulary Mastery at Grade VII of SMP Negeri 2 Padangsidimpuan"**, we approved that the thesis has been acceptable to complete the requirement to fulfill for Graduate Degree of Islamic Education Scholar (S.Pd.I) in English Education Department, Faculty of Tarbiyah and Teacher Training in IAIN Padangsidimpuan.

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

Wassalamu'alaikum Wr. Wb.

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DECLARATION OF SELF THESIS COMPLETION

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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 Padangsidimpuan article 14. Verse 2.

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LEGALIZATION

Thesis	: **THE EFFECT OF PEGWORDS METHOD ON STUDENTS' VOCABULARY MASTERY AT GRADE VII OF SMP N 2 PADANGSIDIMPUAN**
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The Thesis had been accepted as a partial fulfillment of the requirement for the degree of Islamic Education Scholar (S.Pd.I) in English

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ABSTRACT

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The Title of the Thesis :**The Effect of Pegwords Method on Students' Vocabulary Mastery at Grade VII of SMP Negeri 2 Padangsidimpuan**

The problems of this research were: 1) Students had low achievement in vocabulary mastery, 2) Students had lack motivation in learning vocabulary, 3) Students had difficulties memorizing in learning vocabulary, 4) Students did not have good strategy or just used monotononous strategy in learning vocabulary. Therefore, this research had purpose to describe and examine whether there was significant effect of Pegwords Method on Students' Vocabulary Mastery at Grade VII of SMP N 2 Padangsidimpuan.

This research employed experimental research. The population of this research was the seven grade of SMP N 2 Padangsidimpuan. The total of population were eleven classes. Then, the sample of the research was 2 classes, experiment class (VII-1) and control class (VII-2). It was taken randomly after conducting normality and homogeneity test. To collect the data, researcher used test for measuring students' vocabulary mastery. To analysis the data, the researcher used T-test formula.

Based on the result of the data, the researcher found that mean score of experiment class was 80.75 and control class was 62.85 in post-test. Based on calculation of T-test, the researcher found that t_{count}= 8.48 and t_{table} = 2.000. It means $t_{count}>t_{table}$ (8.48>2.000) the hyphotesis was accepted. It was concluded that there was the significant effect of Pegwords Method on Students' Vocabulary Mastery at Grade VII of SMP N 2 Padangsidimpuan.

ACKNOWLEDGEMENT

بسم الله الرحمن الرحيم

In the name of Allah, The Beneficent, The Merciful.

All praise be to Allah, the Lord of Universe, and Gratitude is to Him who has given me healthy and the strenght in complete and finishing this thesis. Next, peace and blessing be upon to our Prophet Muhammad SAW who has guided us to have good life.

This thesis is presented to the English Department of the State Institute for Islamic Studies (IAIN) Padangsidimpuan as a Partial Fulfillment of the Requirement for the Degree of Islamic Education Scholar (S.Pd.I).

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Finally, I realize that there must be some weaknesses in this thesis. Therefore, I welcome to all good and value critics that can improve this thesis.

Padangsidimpuan, 19 October 2015

Researcher,

Cici Hafsah Sipahutar
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CHAPTER I
INTRODUCTION

A. Background of the Problem

Vocabulary is one of the important aspect in teaching a language. Vocabulary an essential role in creating understanding of language through what the student learning in school. Vocabulary that helps the students to communication succesfully.Besides, vocabulary is one element that links there are four skills that have to be mastered by the students. The four basic skills in English; listening, speaking, reading and writing which prominant in teaching and learning English. Both aspects are very important that need to be mastered by the students to acomplish the basic language communication and the students have to practice all those skills which can not be separated from each other. The students may be able to use English in communication better if they master all those language components. The students can do communication and get information through vocabulary. Vocabulary as the base of all, without proportional amount of vocabulary anyone will get trouble in her listening, speaking, reading, and writing.

Then, in four basic skills in English; listening, speaking, reading, and writing. Students must have many vocabularies for making the English communication will be running well. Here are the cases the important of vocabulary in four basic English.

In listening, vocabularies are very important, because the students can comprehend and understand what other person speaks. The students for getting the

information rightly, clearly, and missunderstanding. In order the students have stock of words used in language will make their listening better. So, the students must comprehending of vocabulary and mastering of vocabulary as much as possible.

In speaking, we use spoken and written words everyday to communicate ideas in around us. Talking about the different meaning of the same wordsand using the word in different sentences. Through vocabulary we can speak well and have master it. It is surely that students who have many vocabularies can make sparkling communication and speak fluent in daily life.

While in reading, vocabulary is the core skill that enable to enhance reading. Students can not understand what they are reading without knowing what most of the words meaning. In reading students can become familiar with new words. By having a good mastery vocabulary, the students will be easy to get information, understanding from many sourcesand comprehension the ideas of others. Through vocabulary they understand what the text about and get the information well. The last in writing,vocabularies are very important, because it helps them to expand their ideas based on the topic sentence or idea in their mind that they want.

Some important of vocabulary above show that people must more pay attention to their vocabulary mastery and can improve it. Based on the interviewed with the teacher,[1]the researcher got the information from one of the teachers of English subject that students at Grade VII SMP N 2 Padangsidimpuan had problems on vocabulary mastery. It can be seen based on illustration below:

[1]Juni Sukaesih, S.Pd., *English Teacher at SMP N 2 Padangsidimpuan*.

The first, when the researcher asked the English teacher of SMP Negeri 2 Padangsidimpuan. She said that most of the students low ability in mastering English vocabulary. Mastering vocabulary is one important skills to determine their skill. They did not active participation and did not know how the words pronunciation correctly and meaning. So it make them felt difficulties mastering of vocabulary.

The second, many students are lack motivation and attention. When the researcher asked some students about some of vocabularies, many students did not know about English vocabularies. It means that many students hadlessvocabulary.Students are seldom to practice because students cannot master and memorize vocabulary well.Finally, most of them did not have the strategies in vocabulary mastery. Teachers teach vocabulary just mention and students just write it down in their book.

From the problems that have mentioned above, it needed to be solved. There are strategies that can be used in teaching vocabulary. There are; Flashcard, Picture, Synonym, Antonym, Semantic Mapping, and Pegwords Method. Flashcard is a card that have words, numbers, and pictures on it. Picture is used in provided pictures stories, pictures cards, and wall picture. Synonym and Antonym is used game words with similar and contrast meaning. Semantic mapping as instructional tools provides students with a deepingunderstanding of words including their concept knowledge and relationship to other words. Pegwords method is used for helping to remember something to easily memorizable items which act as peg or hooks to become familiar to link new information that is taught to information they already know.

From the strategies that have mentioned above, the researcher interested to pegwords method. While, pegwords method is more simply to make the students enrich and remember their vocabulary.By understanding word, students will be able to understand the meaning and remember easily. There are some motives, why researcher chose pegwords as a method, below:

The first, pegwords method is one of the most useful memory techniques. Pegwords uses visual imagery to privade a hook or peg from which to hang associate students memories.[2]

The second, by using pegwords method both visualization and rhymes are the key ingredients that make learning and recalling facts easier. As most students are either visual or auditory learners, the pegwords method is able to target and stimulate the key learning pattern of the students.[3]

The last, through pegwords method will support their vocabulary learning more active, make memorization process learner concentration. Pegwords method can help students easy to remember what represents each number.[4]The using of pegwords method can expected motivated the students in learning vocabulary, and the researcher hopes that pegwords method can make students enjoyable, interesting and conductive to learn more enthusiastically in learning vocabulary.

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[2]Douglas, J, The Peg System*, (http://www.thememoryinstitute.com/the-peg-system.html), retrieved on January 15, 2015 at 16.30 p.m.*

[3]Houghton Mifflin ,How Can I Use the Peg Word Method to Remember, *(https://k12teacherstaffdevelopment.com/tlb/how-can-i-use-the-peg-word-method-to-remember/), retrieved on January15, 2015 at 16.30 p.m.*

[4]Kennet L. Higbee, Your Memory: How It Works and How to Improve It, *(http://www2.hci.edu.sg/s9842525z/Train%20your%20Brain/Resource%20Package/your -memory-.html), retrieved on January 15, 2015 at 16.30 p.m.*

Based on this case, the researcher felt that this problems needed to be searched, therefore the researcher wanted to conduct a experimental research of "**THE EFFECT OF PEGWORDS METHOD ON STUDENTS' VOCABULARY MASTERY AT GRADE VII OF SMP NEGERI 2 PADANGSIDIMPUAN".**

B. The Identification of the Problem

Based on the background above, there are some problems in vocabulary mastery at grade VII SMP Negeri2Padangsidimpuan as following are: 1) Students hadlow achievement in vocabulary mastery, 2) Students had lack motivation in learning vocabulary, 3) Students had difficulties memorizing in learning vocabulary, 4) Students did not have good strategy or just used monotononous strategy in learning vocabulary.

C. The Limitation of the Problem

Based on the identification of the problems described in the previous section, truly there are many techniques that can be used by teacher in teaching vocabulary. The researcher focus of the research was the problems in students' vocabulary mastery that had been done by using pegwords method especially about nouns and verbs.

D. The Formulation of the Problem

The formulation of the problem of this research as follow:

1. How the students'vocabulary mastery before using pegwords method?
2. How the students' vocabulary mastery after using pegwords method?

3. Is there a significant effect of using pegwords method to students' vocabulary mastery?

E. The Purposes of the Research

From the formulation above, the purposes of this research are:

1. To describe the students' vocabulary mastery in conventional class before using pegwords method.
2. To describe the students' vocabulary mastery in experimental class after using Pegwords method.
3. To examine whether the effect of using pegwords method to students' vocabulary mastery was significant or not.

F. The Significances of the Research

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

1. The result of this research is expected to be useful for English teacher to improve learners' ability in teaching vocabulary by using pegwords method.
2. The result of this research is expected to increase students' interest, motivation and memorize easily in learning vocabulary.
3. The result of this research is also expected to develop all information and knowledge for those who are interested in doing research related to this research.

G. The Definition of Operational Variables

The avoiding ambiguity, this research is consisted of two variables, so the following are definitions of variables:

1. Pegwords method is a technique for memorizing lists. It works by pre-memorizing a list of words that are easy to associated with the numbers they represent.
2. Students' Vocabulary Mastery: students' vocabulary mastery is the students that can become masterin vocabulary. It means students' vocabulary mastery at pre-test and post-test in experimental class and control class.The vocabulary in English; Noun, verb, adverb, adjective, pronoun,conjunction, interjection, and preposition.

H. The Outline of the Thesis

The systematic of this research was devided into five chapters.Each chapter consists of many sub chapters with detail as follow:

In the chapter one, it was consists of backgroundof the problem, identification of the problem, formulation of the problem, limitation of problem, the purpose of the research, significantces of the research, definitionof operational variables,and outline of the thesis.

In the chapter two, it was consists of the theoretical description, review of related finding, conceptual framework, and hypothesis.

In the chapter three, it was consists of research methodology which consists of time and place of the research, research methodology, population and sample, instrumentation collecting data, the operational of variable, the techniques of data collection and the last the techniques of data analysis.

In the chapter four, it was the result of the research talking about the analysis of data. Thischapter,consists of description of data, hypothesis testing, discussion and the threats of research.

Finally, in the chapter five, it was consists of conclusion that is giving conclusion about the result of research and suggestion that given suggestion to students and teacher by researcher.

CHAPTER II
THEORETICAL DESCRIPTION

A. Theoretical Description

Review of related literature involves the systemic identification, location, and analysis of documents containing information related to the research problem, it proposes to determine what has already been done that relates to the topic of the research and provides the understanding and insights necessary to develop a logical framework into the topic. This research reviews the theories of pegwords method and vocabulary mastery as in the following.

1. Pegwords Method

a. Definition of Pegwords Method

Some opinions about pegwords method will be presented by experts as follows. According to Milton J. Dehn stated that pegwords are method that can help to remember words and facts.[1] Mohammad Amiryousefi stated that pegwords method is unrelated items can be remembered easily by relating them to easily memorizable items which act as pegs or hooks.[2] The pegwords are more complicated and thus will take more time for students to learn.[3] Pegwords are words that rhyme with number words.[4] The use of rhymes to remember a word.[5]

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[1]Milton J. Dehn, *Helping Students Remember* (Canada: New Jersey, 2011), p. 92.

[2]Mohammad Amiryousefi, *Mnemonic Instruction: A Way to Boost Vocabulary Learning and Recall*, (Journal of Language Teaching and Learning) (University of Isfahan, Iran: 2011), p. 179.

[3]Donna K. Wood and Allan R. Frank, *Using Memory-Enhancing Strategies To Learn Multiplication Facts* (Teaching Exceptional Children, 2000). p. 4.

[4]Richmond, A. S., *Technique for Remembering Information*, (http://www.ucdenver.edu/life/services/LRC/Documents/Selfpaced%20trainings/memory%20Techniques-%20student%20version.pdf), retrieved on February 15, 2015 at 16.30 p.m.

Then, according to Karen A. Kleinheksel and Sarah E. Summy pegwords method is used when numbered or ordered information needs to be remembered. The numbers or ordered information are related through interactive pictures to connect with numbers.[6]Another explanation, Mark S D'Arcy explained that:

> Pegging which enable to memorise longdigit numbers of up to 100 digits having read through them only once. A straight forwad technique, known as the number rhyming method, that should make remembering numbers of up to about ten digits or so. The technique of number or rhyming is a simple one to master. All that is consists of, is transforming a number that wish to remember, into a form that can be easily visualised. [7]

From the explanation above, it can be concluded that pegwords method is rhyme with number words through interactive with pictures and way to increase the attention of information that will be remembered. The peg system gets its name from the fact that the pegwords serve as mental pegs or hooks on which the person "hangs" the items to be remembered. To use the peg to learn new material, associate the new material with each of the pegwords in order.

b. The Important of Pegwords Method

There are some importants of pegwords, they are:

1) Peg system remind you of what you are supposed to remember.
2) Peg systems allow direct retrieval of items.
3) The pegs can be used over and over.

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[5]Keith Johnson, *An Introduction to Foreign Language Learning and Teaching* (United Kingdom: Pearson Education: 2001), p. 152.

[6]Karen A.Kleinheksel and Sarah E. Summy, *Enhancing Student Learning and Social Behavior Through Mnemonic Strategies* (Council for Exceptional Children, 2003), p. 30.

[7]Mark S D'Arcy, *Introducing Mnemonics (Improve Your Memory Improve Your Mind)*, p. 25.

4) You can use several types of pegs together to create flexibility.
5) Pegs can be combine with the loci or link systems.[8]

Based on the important of pegwords above, can be concluded that the using pegwords above can be used to make strenght and fast for remembering.

c. The Steps to Follow to Use the Pegwords

Here are the steps to follow the use the pegwords strategy:

1) Think of the first piece of information to be remembered.
2) Think of the pegword for the number word one. The pegword for one is *gun*.
3) Form an association in your mind between the pegword one and the first piece of information to be remembered. Create a picture in your mind of this association.
4) Related through interactive pictures to connect with numbers.
5) Repeat steps 1-4 for each additional piece of information to be remembered. Use the pegword *show* for the second piece of information, *coffee* for the third piece of information, and so on.[9]

From the explanation above, it can be concluded that procedures of pegwords methods are:

1) Think of the first piece of information to be remembered.
2) Think of the pegword for the number word one and so on.

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[8]Katharina Edwina Saputri, *Transcrip to Untitled Prezi*, (https://prezi.com/2e6ulfqmfga6/untitled-prezi /ntitled prezi), retrieved on September 16, 2015 at 09.00 p.m.

[9]Richmond, A. S., *Technique for Remembering Information*, (http://www.ucdenver.edu/life/services/LRC/Documents/Selfpaced%20trainings/memory%20Techniques-%20student%20version.pdf), retrieved on February 15, 2015 at 16.30 p.m.

3) Form an association in your mind between the pegword
4) Create a picture and related to connect with numbers.
5) Repeat the steps 1-4.

2. Vocabulary

a. The Definition of Vocabulary

Vocabulary is one of the subs skills in learning English. Vocabulary is also one of the important things to mastering the four basic skills in English; listening, speaking, reading, and writing. Vocabulary takes an important part in the language use. It has a great impact to the students when they want to convey and share their opinion by oral and written. The students can speak fluently and have a good writing if they have some vocabularies. It is also one of the factors to master English as a foreign language. Hornby said "Vocabulary is all the words that a person knows or use, the words that people use when they are telling about particular subject".[10] Ted Tucker said "A vocabulary is the total words known by a speaker or total words in a language".[11]

Howard Jackson said "Vocabulary is a representative collection of the words that exist in English language".[12] While Penny Ur stated that "Vocabulary is the words that teach in the foreign language".[13]Then Richards and Renandya said, "Vocabulary is a core component of language

[10]A. S. Hornby, *Oxford Advanced Learnes Dictionary* (New York: Oxford University Press, 2000), p.1506.
[11]Ted Tucker, et al., *99 Fast Ways to Improve Your English* (Brain House), p. 56.
[12]Howard Jackson, *Words, Meaning and Vocabulary* (London: Casell, 2000) p. 118.
[13]Penny Ur, *A Course in Language Teaching Practice and Theory* (New York: Cambridge University Press, 1991), p. 71.

proficiency and provides much of the basis for how well learners speak, listen, read, and write".[14] Vocabulary is one of the few basic language skills for which genetic and environmental effects have been determined.[15]So, vocabulary is a mainskill which should be mastered by the students to get and understand whole English skill; receptive skill (listening and reading) and productive skill (speaking and writing).

The problems may occur when the students do not master the vocabulary well. They will not be able to comprehend the content of the text if they have less vocabulary. They also cannot speak fluently if their vocabulary is low. Moreover, they cannot write when they want to convey their opinion or ideas.

From the problems above, the researcher concluded that vocabulary is a language competent component which gave information or some explanations in a language terms. Vocabulary or words can be used to describe actions, show relationship and to combine words or sentences. In learning vocabulary there were some materials which are frequently used in speech or writing.

b. Kinds of Vocabulary

Many kinds of vocabulary that can be used to know some people about their knowledge in vocabulary mastery. On other hand, with many kinds of vocabulary that can be used to identify the level of someone; who

[14]Jack C. Richard & Williy A. Renandya, *Methodology in Language Teaching and Anthology of Current Practice* (USA: Cambridge University Press, 2000), p. 255.

[15]Diane McGuinness, *Language Development and Learning to Read (The Scientific Study of How Language Development Affects Reading Skill)*, (London: Cambridge Press, 2005), p. 272.

is in the beginner level, who is in the intermediate level, and who is in the advance level. So, kinds of vocabulary are one of the knowledge to know the people knowledge and mastery in vocabulary.

Meanwhile, Fries as quoted by A. M. Zaenuri says that vocabulary is of two namely; function and contents words. The function words are a closed class, we cannot add to the prepositions, auxiliaries, modals, or any structure words of the language. The content words can be added to at anytime as new scientific advances make new words and communication about new invention necessary.[16]

Then, according to Thornbury in Harmer, there are two kinds of vocabulary, as follows: Receptive vocabulary or Passive vocabulary and Productive vocabulary or Active vocabulary.[17] The further explanation is:

1) Receptive Vocabulary or Passive Vocabulary
   Receptive vocabulary can be understood only through listening and reading. Someone doesn't need to know much about the receptive vocabulary because someone rarely uses the receptive vocabulary and it is impossible for someone to memorize all the vocabularies of a certain language but someone can understand the ideas of the utterance contextually not word by word.
2) ProductiveVocabulary or Active Vocabulary
   Productive vocabulary involves of knowing how to pronounce the word, how to write and spell it, how to use it in correct grammatical patterns along with the words that usually collocate with.[18]

Based on the quotation above, the researcher took a conclusion about receptive or passive vocabulary will be easy understand by using listening and reading to remember words or vocabularies, while productive or active

[16]A. M. Zaenuri, *Vocabulary 1* (Jakarta, 2003), p. 1-2.
[17]Jeremy Harmer, *The Practical of English Language Teaching* (New York: Longman, 2000),p. 158.
[18]*Ibid*., p. 159.

vocabulary will be easy understand by using concentration patterns and grammatical word to get vocabulary.

c. Classification of Vocabulary

Vocabularies are classified into two parts; function and contents of words. The classification of words intended of such as adjective, adverb, preposition, pronoun, verb, noun, conjunction and interjection. In classification the words, categories them as follows:

1) Adjective is a word used to add to the meaning of noun.
2) Adverb is a word used to add something to the meaning of a verb, and adjectives, or another adverb.
3) Preposition is a word used with a noun or pronoun to show how the person or thing denoted by the noun or pronoun stands in relation to something else.
4) Pronoun is a words used in place of nouns.
5) Verb is a words used to say something about some person, place, or thing.
6) Noun is a word used as the name of a person, place or thing.
7) Conjunction is a word used to join words or sentence.
8) Interjection is a word which expresses some sudden feeling.[19]

Based on the researcher said before the focus on this research that there are many vocabularies according its classification, but because of the limitation by the research so the researcher limited the problems only in memorizing nouns and verbs.

1) Noun

Phyllis Dutwin said that nouns as words that stand for people, places, or things.[20]Amy E. Olsen stated that noun is name a person, place,

[19]Martin, *High School English Grammar* (Jakarta: Prasada Rao, 1990), p. 3-4.
[20]Phyllis Dutwin, *English Grammar Demystified (A Self-Teaching Guide)*, (New York: Mc Graw Hill, 2010), p. 29.

or thing.[21] Howard Jackson said that nouns as things, including people, animals, objects, abstract ideas, and feelings.[22] Then, Ann Batko said that a noun is simply a name, a word that identifies whatever it is you're talking about.[23] Noun is the name of something.[24] From the statement, the researcher concludes that noun is which one form parts of speech that used as for the name or things.

According to Jayanthi, nouns are divided into eight parts:

a) Common noun: a common noun is a name given in common to every personor thing of the same class or kind.
   Examples: boy, woman, city, village.
b) Proper noun: a proper noun is the name of some particular person or place.
   Examples: mother Teresa, India, America.
c) Collective noun: a collective noun is the name of collection of things or persons.
   Examples: class, family, team.
d) Concrete noun: a concrete noun is the name of things that can be touched or seen.
   Examples: room, sun, girl, boy.
e) Abstract noun: abstract noun is the name of quality, action or state.
   Examples: liberty, life, truth, love.
f) Countable noun: a countable noun is the name of things that can be counted or divided into singular or plural.
   Examples: table, pen, book, man.
g) Uncountable noun: uncountable noun is the name of a thing that cannot be counted or divided into singular or plural.
   Examples: money, ice, coffee, ink.
h) Material noun: material noun is the name of material or substance out of which things are made.
   Examples: butter, water, paper, glass.[25]

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[21]Amy E. Olsen, *Academic Vocabulary: Academic Words (Fourth Edition)*, (Pearson Education, Inc: 2010), p. 1.

[22]Howard Jackson, *Good Grammar for Students* (London: SAGE Publication, 2005), p. 18.

[23]Ann Batko, *When Bad Grammar Happens to Good People (How to Avoid Common Errors in English)*, (The Career Press: 2004), p. 33.

[24]George M. Jones., et al., *A High School English Grammar* (Toronto and London: Victoria College Library, 1922), p. 12.

[25]Jayanthi Dakshina Murthy, *Contemporary English Grammar* (Delhi: Book Palace, 2003), p. 10-11.

In some instances, it find that need to use more than one nouns. So, the parts of nouns will make students and teachers more comprehend and understand about nouns.

In addition, Anne Seaton also stated that there are seven parts of nouns, they are:

a) Common nouns: common nouns are words for people, animals, places, or things.
   Examples: eagle, teacher, beach, bed.
b) Proper nouns: proper nouns are names for particular people, places, or things. They always begin with a capital letter.
   Examples: Harry Potter, Japanese, Monday, January.
c) Singular nouns: singular nouns are when you are talking about one person, animal, place, or thing, use a singular noun.
   Examples: a ship, an umbrella, a car, a house.
d) Plural nouns: plural nouns are when you are talking about twoor more people, animals, places, or things, use plural nouns.
   Examples: stars, dolls, eggs, mice, butterflies.
e) Collective nouns: collective nouns are words for groups of people, animal, or things.
   Examples: a family, a team of players, an audience.
f) Masculine nouns: masculine nouns are words for men and boys, and male animals.
   Examples: brother, father, rooster, king, bridgeroom.
g) Feminine nouns: feminine nouns are words for women and girls, and female animals.
   Examples: aunt, niece, princess, hen, bridge, queen.[26]

The explanation above describes the parts of nouns. In other words, it explains the parts of nouns will make students and teachers more comprehend and understand about nouns in learning process that there are more than one used nouns.

[26]Anne Seaton, *Basic English Grammar (for English Language Learners)*, (United States of America: Saddleback Educational Publishing, 2007), p. 8-41.

2) Verb

A verb is a "doing word", it express the carrying out of an action.[27] A verb express an action or state of being.[28] Verb is part of the backbone of any sentence, joining the noun or subject as one of two absolutely necessary elements of acomplete sentence.[29] In Oxford Learners Pocket Dictionary state that verb is word or phrase that expresses an action, an event or state.[30] A verb is describe as a word which is used to indicate an action, a state of being of existence or possession.[31] Verbs described an action or a state of being. Their role is to make a statement about the subject of your sentence, that is about whomever or whatever you're talking.[32] A few verbs indicate states or conditions, but most verbs involve actions.[33] A verb is a word which we can make an assertion. What is asserted is either an action or state.[34] From those statements, the researcher concluded that a verb is the most complex part of speech that used to indicate an action. There are two types of verbs in English, namely:

a) Transitive verb
   A transitive verb is a verb that denotes an action which passes over from the doer or subject to an object. Most transitive verbs take a single object.

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[27]Graham Tulloch, *English Grammar A Short Guide* (University of South Australia: Flinders Press, 1990), p. 6.
[28]Amy E. Olsen, *Academic Vocabulay*... p. 1.
[29]Phyllis Dutwin, *English Grammar*... p. 30.
[30]A. S. Hornby, *Oxford Advanced*... p. 492.
[31]Jayanthi Dakshina Murthy, *Contemporary English* ... p. 86.
[32]Ann Batko, *When Bad*... p. 33.
[33]Richard V. Teschner and Eston E. Evans, *Analyzing the Grammar of English (Third Edition)*, (Washington, D. C: Georgetown University Press, 2007), p. 8.
[34]C. E. Eckersley, *A Concise English Grammar for Foreign Students* (London: Longmans, 1958), p. 40.

Examples: like, speaks, bought, sent.

b) Intransitive verb
An intransitive verb is a verb that denotes an action which does not pass over to an object, or which expresses a state or being. Intransitive verbs expressing being take the same cases after them as before them.
Examples: slept, walked, sat.[35]

So, it can be concluded that there are two types of verbs; transitive and intransitive verb. A verb is the most complex part of speech that used to indicate an action, an event or state.

d. The Importance Vocabularies

There are some importance of vocabularies:

1) Vocabulary to build a large store of words
2) Much more than grammar
3) Key to understand what the students hear and read in school
4) Communicating successfully with other people
5) Vocabulary
As a votal part of education and part of the language art.
a) Formal education
Easier to learn English and more vocabulary before practice reading, speaking, listening, and writing.[36]

So, it can be concluded that there are some importantce of vocabularies as part of education and part of the language art four basic skills in English; reading, speaking, listening, and writing.

e. Teaching Vocabulary

Learning a new language is basically a matter of learning the vocabulary of that language. Teaching English vocabulary is focuson four skills of the language. On other hand, it has important role in learning the four skills of the language. In learning and teachingEnglish, vocabulary is

[35]Martin, *High School...* p. 64.
[36]*Ibid*., p. 13-14.

one of the crusial aspects because the unlimited number of vocabulary in a language. Teaching vocabulary should be presented interactively in teaching of the four language skills. Therefore, vocabulary is the most important subject in teaching and learning process.

In teaching vocabulary, there are some guidelines for the communicative treatment of vocabulary instruction in teaching vocabulary:

1) Allocate specific class time to vocabulary learning.
2) Help students to learn vocabulary in context
3) Play down the role of bilingual dictionaries
4) Encourage students to develop strategies for determining the meaning of words.[37]

These guidelines above show that when the teachers start the teaching vocabulary, the teacher must pay attention all of the aspects that are related with teaching vocabulary.

According to Swaminatha Pillai, there are three following terms not only for teaching but also for using vocabulary effectively:

1) Connotation
   The slim person, the thin person, the skinny person may all be the same weight. The choice of one phrase rather than the other will probably indicate how the speaker feels about the person. Certain words are chosen because, they convey some kind of feeling or judgement.
2) Collocation
   A simple example of two words having almost same meaning. The words are 'distant' and 'remote'. The grid illustrates the overlapping but distinct collocability of these two words.
3) Association
   Similar to the connotation of a word is its association. Whereas connotations relate to the system of the language, associations relate to the individual or the culture.[38]

[37]H. Douglas Brown, *Teaching by Principles An Interactive Approach to Language Pedagogy*, (United Stated of America: Prentice Hall Regents, 1998), p. 365.

These terms above show that as teachers English should know the three terms inteaching vocabulary, the teacher must pay attention all of the aspects that are related not only with teaching vocabulary but also for using vocabulary effectively.

In order to make teaching vocabulary more effective, there are some principles in teaching vocabulary. They are:

1) Focus on the most useful vocabulary first.
2) Focus on the vocabulary in the most appropriate way.
3) Give attention to high frequency cords across the four strands of a course.
4) Encourage learners to reflect on and take responsibility for learning.[39]

Based on the principles above, it can show that principles in teaching vocabulary are one of the important components in teaching, especially in teaching vocabulary. So, the teachers must know principle of teaching vocabulary when they will teach.

Further, Richard says, there are some principles in teaching vocabulary. He gives some principles to help the teachers in teaching vocabulary. They are:

1) Provide opportunities for the incidental learningof vocabulary.
2) Diagnose which of the 3,000 most common words learners need to study.
3) Provide opportunities for the intentional learning of vocabulary.
4) Provide opportunities for elaborating word knowledge
5) Provide opportunities for developing fluency with known vocabulary.
6) Experiment with guessing from context.

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[38]Swaminatha Pillai, et al., *English Language Teaching* (Tamilnadu: Government of Tamilnadu, 2008), p. 158.

[39]David Nunan, *Practical English Language Teaching* (New York: Mc. Gran Hill, 2003), p. 135-140.

7) Examine different types of dictionaries and teach students how to use them.[40]

It can be concluded that teachers must provide any kinds that are needed for teaching vocabulary like as above. So, the teaching vocabulary can make more efficient and effective

Then, there are number of traditional teaching practices related to vocabulary:

1) Look them up. Certainly dictionaries have their place, especially during writing, but the act of looking up a word and copying a definition is not likely result in vocabulary learning (especially if there are long lists of unrelated words to look up and for which to copy the definitions).
2) Use them in a sentence. Writing sentence with new vocabulary AFTER some understanding of the word is helpful; however to assign this task before the study of word meaning is of little value.
3) Context. The context is a very reliable source of learning word meanings.
4) Memorize definitions. Rote learning of word meanings likely to result, at best, in the ability to parrot back what is not clearly understood.[41]

Based on the teaching practices above, it can show that traditional teaching practices in teaching vocabulary are one of the important components in teaching, especially in teaching vocabulary. So, the teachers must know number of traditional teaching practices related to vocabulary when they will teach.

f. The Techniques in Presenting New Vocabulary

Vocabulary is basic communication. If the people do not recognize the meaning of the key words used by those who address them, they will not be

[40]Jack C. Richards and Willy A. Renandya, *Methodology in*... p. 259-263.
[41]Innayatul Mukarromah, *Vocabulary Games Based On Reading Text* (Jember: STAIN Jember PRESS, 2014), P. 5-6.

able to participate in the conversation. If they want to express ideas or ask for information, they must be able to produce words to convey their meaning.

In teaching vocabulary, the teachers are hoped to have some techniques in order to make students familiar with the vocabulary so that they understand new word easily. Students need something fun and easy to access the vocabulary quickly when it is required for use. In this section, some techniques to teaching and learning vocabulary are offered to facilitate students'need in accessing vocabulary. The techniques functions not only to help the students grasp the meaning of new words quite easily, but also to vary the teaching activity in order to avoid the bored on the part of students.

According to Harmer, there are seven techniques in presenting vocabulary:[42]

1) Realia

   One way of presenting words is to bring the things they represent into the classroom by bringing "realia" into the room. Words like "postcards", "ruler", "pen", "ball", etc. can obviously be presented in this way. The teacher holds up the object (or points to it), says the word and then gets students to repeat it.

2) Pictures

   Bringing a pen into the classroom is not a problem. Bringing in a car, however, is. One solution is the use of pictures. Pictures can be board

[42]Jeremy Harmer, *The Practical*... p.85-86.

drawings, wall pictures, and charts, flashcards, magazine pictures and any other non-technical visual Representation. Pictures can be used to explain the meaning of vocabulary items: teachers can draw things on the board or bring in pictures. They can illustrate concepts such as above and opposite just as easily hats, coats, walking, sticks, cars, smiles and frown.

3) Mime, Action, Gesture

It is often impossible to explain the meaning of words and grammar either through the use of realia or in pictures. Actions, in particular, are probably better explained by mime. Concepts like running or jumping are easy to present in this way; so are ways of walking, expressions, prepositions and times.

4) Contrast

We saw how words exist because of their sense relations and this can be used to teach meaning. We can present the meaning of “empty” by contrasting it with “full”, “cold” by contrasting it with “hot”.

5) Enumeration

The world “vegetable” is difficult to be explained visually. If the teacher rapidly lists or enumerates a number of vegetables, the meaning will become clear. The same is true of a word like “clothes”.

6) Explanation

Explanation the meaning of vocabulary items can be extremely difficult just as grammatical explanation. It will be important in giving

such explanation to make sure that the explanations include information about when the item can be used.

7) Translation

For many years, translation went out of fashion and was considered as something of sin. Clearly, if the teacher is always translating this will impede the students' learning since that want to hear and use the target language.

Based on explanation above, there are some techniques to present new vocabulary. The students will be helped to mastering the vocabulary. Therefore, there is one of good strategies to improve students' vocabulary mastery in the classroom as individually.

g. Vocabulary Evaluation

After researcher gives the lesson to the students through pegwords method, it is important to know how far their ability about the lesson, especially in vocabulary mastery. Teacher needs to know their mastery; therefore, the vocabulary test will be designed in order to measure the students' vocabulary mastery at grade VII of SMP N 2 Padangsidimpuan. Researcher used completion question / fill in the blanksbased on the picture to know their vocabulary mastery.

Then, here are the indicators that researcher use:

1) Identify of nouns
2) Identify of verbs

From the explanation above the researcher took a conclusion the meaning of vocabulary that vocabulary is very important. Vocabulary as all words that people know or use and also as the core component of words that are list in the alphabetical order and core component of language proficiency and provides much of the basis for how well learners speak, listen, read and write.

h. Material Development

Materials are visible product of activity, regardless of whether such activity is useful or even necessary.[43] Materials help to organize the teaching-learning process, by providing a path through the complex mass of a language to be learnt. Good materials should provide a clear and coherent unit structure which will guide the teacher and learner through various activities in such a way as to maximize the chances of learning.

So that before making lesson plan, we need discuss about the material development of the teaching below, the material development by using pegwords method are:

1) It consists of the list vocabulary picture that had been explained to the students.
2) It consists of the list of vocabulary about the nouns and verbs.

[43]Tom Hutchinson and Alan Waters, *English for Specific Purpose* (New York: Cambridge University Press, 1986), p. 106.

i. Conventional Strategy

Conventional strategy is the strategy or the way that usually used by the teachers to teach the vocabulary to students.[44]According to Hudson that conventional strategy is the strategy used by the teachers based on mutual agreement in a school.[45] Based on the explanation, the researcher concluded that conventional strategy is the strategy used to teach learning materials based on the arrangement at school.

Based on the explanation above, the researcher concludes that the procedure used by the English teachers at SMP N 2 Padangsidimpuan, are as follows:

1) Explain the subject matter,
2) Identify the difficult words,
3) Answer the questions
4) Give the homework

B. Review of Related Findings

There are some related findings related to this research. The first is Abdul Gofar with the registration number 10 2014 023 719 students at UIN Syarif Hidayatullah Jakarta entitled "Teaching Vocabulary Through Mnemonic Device (The Experiment Study at The Second Year of SMP As-syuja'iyyah Sukaraja Bogor 2008)". He concluded that there is the effect of using Mnemonic Device, where the mean score is 89.9 and control class is 74.6with

[44]Jhon Dryden, *Conventional Strategy* (http://www.britannia.com/EBchecked/topic/421797/nuclear-strategy/53993/conventional-strategy), retrieved on January 17, 2015 at 08.00p.m.

[45]Hudson,"*The Meaning of Conventional Strategy"*(http://www.conventional-strategy/topic/54372-strategy, accessed at October 20, 2014 on 09.00 p.m.)

t_0 is higher than t_t (20.21< 12.81). So, the implication of mnemonic device is better than conventional strategy.[46]

The second Sri Nardani Hasibuan entitled" The Effect of Watching Film to Students' Vocabulary Mastery at Grade XI SMK Negeri 1 Padangsidimpuan". She concluded that, there is the effect of watching film to students' vocabulary mastery, were the mean score after using watching film was 86.66 and mean score before using watching film was 83.25, with t_0 is higher than t_t (1.69 > 1.66). So, the implication of watching film is better than conventional strategy.[47]

The last is Ahmadin Azhar "The Effect of Using Media Video Dora the Explorer to Students' Vocabulary Mastery at SD Negeri 200201/4 Padangsidimpuan". He concluded that there is the effect of using media video Dora The Explorer, where the mean score is 93.26 and control class is 83.04, with t_0 is higher than t_t (12.77 > 1.68). So, the implication of media video Dora the Explorer is better than conventional strategy.[48]

So, from the third of researcher, the researcher can be conclude that many strategies can increase the students' vocabulary mastery. From the third research, pegwords method have the same position with the first and second

[46]Abdul Gofar, "Teaching Vocabulary through Mnemonic Device (The Experiment Study at The Second Year of SMP As-syuja'iyyah Sukaraja Bogor 2008)" *(Unpublished Thesis: UIN Syarif Hidayatullah, 2008)*.

[47]Sri Nardani Hasibuan, "The Effect of Watching Film to Students' Vocabulary Mastery at Grade XI SMK Negeri 1 Padangsidimpuan" *(Unpublished Thesis: IAIN Padangsidimpuan, 2014)*, p.60.

[48]Ahmadin Azhari, "The Effect of Using Media Video DoraThe Explorer to students' vocabulary Mastery at SD Negeri 200201/4 Padangsidimpuan 2011/2012 Academic Year*"(Unpublished Thesis: STAIN Padangsidimpuan, 2012)*, p. 74.

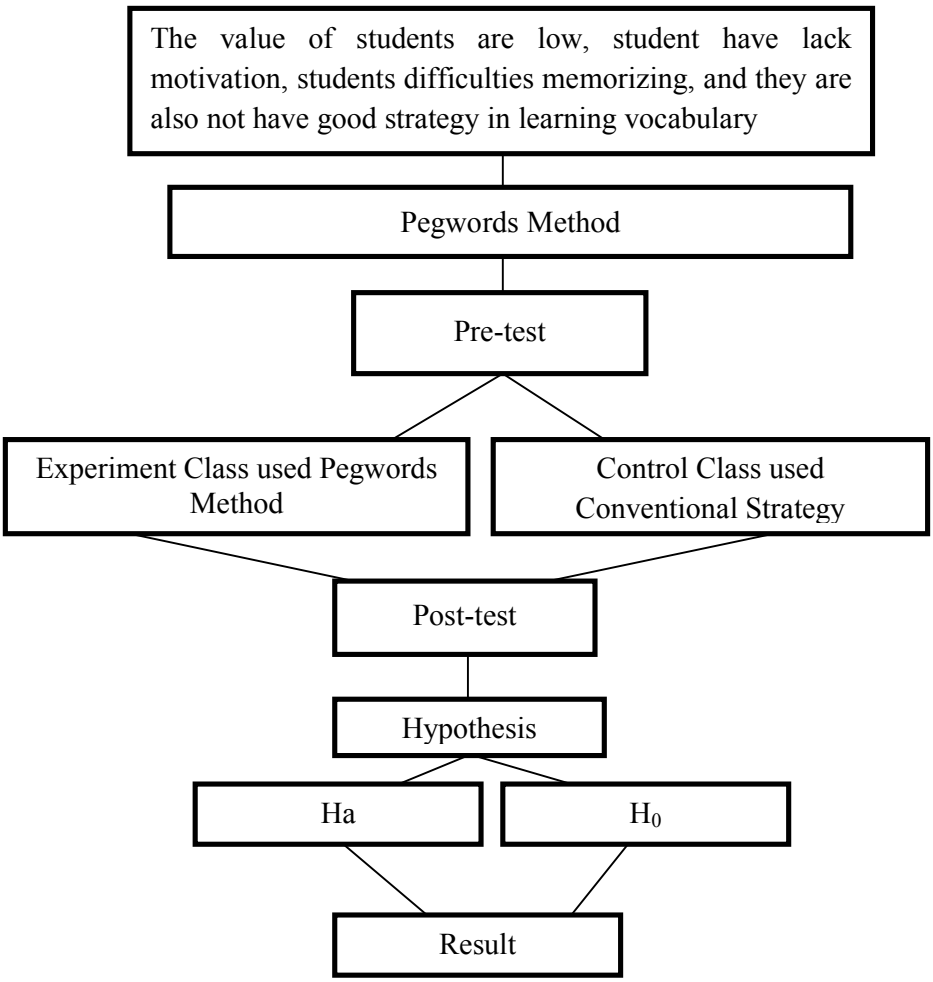
research. Therefore, the researcher wanted to see how the effect of pegwords method on students' vocabulary mastery and how much the effect is.

Summary, these research are not yet found the same research with the researcher research for this now, especially for the effect pegwords method on students' vocabulary mastery. On other hand, this research has the effect to students' vocabulary mastery as a guidance or completeness to do a research in the next time.

C. Conceptual Framework

The successful of vocabulary mastery depend on many factors. One of them is how the teacher teaches vocabulary to the students. The suitable strategy is very important to teach vocabulary. So, the students' must have the vocabulary strategies. Vocabulary strategy is the strategy that used while the students memorize the vocabulary. So, they can more easily to memorize the words.

Pegwords method is one of the vocabulary strategies used to facilitate students to help them more easy to remember vocabulary. The relation of pegwords on vocabulary mastery can be seen as the diagram follow:



From the diagram above, pegwords method in vocabulary mastery has relation. After the researcher found some of the problem vocabulary mastery at SMP N 2 Padangsidimpuan, researcher chose pegwords method to solve vocabulary problems.

Researcher created a pre-test by using pegwords method in the experimental class and using conventional strategy in the control class. Then the researcher made the post-test in which researchers should be taught the strategy of pegwords method before giving the test in the experimental class.

After that, the researcher compared the results obtained in the experimental class and control class.

D. Hypothesis

According to L.R. Gay says, "A hypothesis is a tentative prediction result of the research findings."[49] The purpose of hypothesis is to answer a certain specific question. Hypothesis is a provisional result of the research.[50] Hypothesis are determined based on the formulation. Based on formulation of the problem above, the hypothesis of the research are:

1. There is the significant effect of Pegwords method on students' vocabulary mastery at grade VII of SMP Negeri 2 Padangsidimpuan". (H_a)
2. There is no significant effect of Pegwords method on students' vocabulary mastery at grade VII of SMP Negeri 2 Padangsidimpuan". (H_0)

[49]L. R Gay and Peter Airasian, *Educational Research for Analysis and Application,* (America: Prentice Hall, 1992), p. 71.

[50]Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik* (Jakarta: Rineka Cipta, 2006), p. 71.

CHAPTER III

RESEARCH METHODOLOGY

A. Place and Time Schedule of the Research

This research had been done at Junior High School Negeri 2 Padangsidimpuan. It is located at Jl. Ade Irma Suryani No. 1Padangsidimpuan of North Sumatera. This subject of research wasgrade VII of students in Junior High School Negeri 2 Padangsidimpuan. The schedule of this research was from March 2015 until September 2015.

B. Research Design

Reseacrh design is a procedural plan that is adopted by the researcher to answer questions validly, objectively, accurately and economically.[1]The research design used in this research was quantitative research. The quantitative research is the research which used statistic data as technique of collecting data and analysis of data. To take the data, the researcher made some test and used experimental research. According to SuharsimiArikunto, "Experiment is a way to find a causal relationship between the two factors that intentionally inflicted by researcher with reduce or set aside other factors that could interfere".[2]While, according to Gay and Airasian, "Experiment research is the only type of research that can test hypotheses to established cause and

[1]Ranjit Kumar, *Research Methodology: A Step-by-step Guide for Beginners*, 3rd ed, (India: SAGE Publication, 2011), p. 94.

[2]SuharsimiArikunto, *ProsedurPenelitianSuatuPendekatanPraktik* (Jakarta: RinekaCipta, 1993), p. 3.

effect".[3]Next, according John W. Cresswell, "Experiment research includes true experiment with the random assignment of subject to treatment condition as well as quasi experiment that use none randomized".[4]

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

In this research, the researcher uses two classes, as an experiment class and as a control class. The experiment class is the class that taught with pegwords method, as a treatment. Meanwhile the control class is the class that taught with using conventional strategy or without treatment. It can be seen from the table:

Table I
Research Design

Class		Treatment	
Experiment class	Pre-test	Teaching vocabulary by using Pegwords method	Post-test
Control class	Pre-test	Teaching vocabulary by using conventional strategy	Post-test

[3]L. R. Gay and Peter Airasian, *Educational Research* (USA: Merril, 2000), p. 367.
[4]John W. Creswell, *Research Design* (USA: Sage Publication, 2002), p. 14.

C. Population and Sample

1. Population

SuharsimiArikuntosaid that a population is a set or collection of all elements processing one or more attributes of interest.[5] According to Gay and Airasian, population is the group of interest to the researcher, the group to which she or he would like the result of the study to be generalizable.[6] This research had been done implemented in SMP N 2 Padangsidimpuan. The population was Grade VII Students at SMP N 2Padangsidimpuan. The population there are eleven classes and these classes consists of 319 students, presented as follows:

Table II
Grade VII SMP N 2Padangsidimpuan

No	Classroom	Male	Female	Amount
1.	VII.1	12	16	31
2.	VII.2	15	14	28
3.	VII.3	10	21	28
4.	VII.4	8	14	22
5.	VII.5	10	15	25
6.	VII.6	9	10	19
7.	VII.7	13	12	25
8.	VII.8	17	19	36
9.	VII.9	16	20	36
10.	VII.10	15	21	36
11.	VII.11	15	17	32
Total Number				319

[5]Suharsimi Arikunto, *Prosedur Penelitian*... p. 108.
[6]L. R. Gay and Peter Airasian, *Educational Research*... p. 122.

Source: School Administration Data of SMP N 2 Padangsidimpuan

2. Sample

SuharsimiArikunto said that sample is a parts of population which will be researched.[7]In a research, the information about population is gain by using sample. Sample is a part of population.[8] According to Gay and Airasian, sample comprises the individuals, items, or events selected from a larger group referred to as a population".[9]

In this research, the researcher used random sampling. Before used the random sampling, the researcher used normality and homogeneneity test to got sample which the sample have similar competence. The researcher gave pre-test to three classes of the population. All of the classes are homogen and normal as the sample.

To determine appropriate sample of population was tested with Normality and Homogeneity test like in the following:

a. Normality Test

In Normality test, the data can be tested with Chi-quadrate:[10]

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

[7]SuharsimiArikunto, *Prosedur Penelitian*...p. 109.
[8]S. Margono, *MetodologiPenelitianPendidikan* (Jakarta: RinekaCipta, 2004) p. 121.
[9]L. R. Gay and Peter Airasian. *Educational Research*., p. 121.
[10]Mardalis,*MetodePenelitian:SuatuPendekatan Proposal* (Jakarta: BumiAksara, 2003), p. 85.

Where:

x^2=Chi-Quadrate

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

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

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

Table III
Result of Normality

No	Class	$X^{2\ count}$	$X^{2\ table}$	Result	Interpretation
1.	VII-$_1$	4.61	5.991	$X^2_{count}<X^2_{table}$	Normal
2.	VII-$_2$	1.31	5.991	$X^2_{count}<X^2_{table}$	Normal
3.	VII-$_3$	4.88	5.991	$X^2_{count}<X^2_{table}$	Normal

b. Homogeneity Test

The researcher used homogeneity test to know whether control class and experimental class have the same variant or not. If the both of classes are same, it is can be called homogeneous. To test it, researcher used formula as follow:[11]

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

Where:

n_1= Total of the data that bigger variant

[11]*Ibid*. p. 250.

n_2= Total of the data that smaller variant

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

HypothesisisrejectedifF $\leq$ $F_{\frac{1}{2}a(n_1-1)(1=n_2-1)}$Whileif

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

Table IV
Result of Homogeneity

No	Class	F^{count}	F^{table}	Result	Interpretation
1.	VII-$_1$/VII-$_2$	1.26	2.042 & 2.052	$F_{count}<F_{table}$	Homogenous
2.	VII-$_1$/VII-$_3$	1.09	2.042 & 2.052	$F^{count}<F_{table}$	Homogenous
3.	VII-$_2$/VII-$_3$	1.14	2.042 & 2.052	$F^{count}<F_{table}$	Homogenous

From the discussion before, the sample are three classes of the fir, two classes were taken in order to be an experimental or control class. After comparing the normality and homogeneity test of the third classes in pre-test, the researcher found that all the classes are homogeneity and normal. The researcher chose VII-1 as a experimental class (consists of 31 students) and VII-2 as a control class (consists of 28 students). So, total of samples are 59 students.

D. The Instrument of Collecting Data

A research must have an instrument in this research because a good instrument can go guarantee for taking the valid data. On other hand, SuharsimiArikunto says,

"Instrument of the research is a tool of facility is used by the researcher in collecting data."[12]So that, the process is easier and better with the more careful, complete and systematic.

To get the data from the students, the researcher collected by used fill in the blanks and answer the questions based on the pegwords. Brown definedtest a method of measuring a persons ability : knowledge or performance in a given domain.[13]

Test is some of question or view and other tool used for measure skill, knowledge, and intelligence ability.To find out the scores of the students' answer, the researcher gave 5 score for each item. Thus, the maximum score of test is 100.

Table V
The Indicators of Value (Vocabulary Mastery)

No.	Indicators	Items	Number Items	Score	Total Score
1.	**Noun**	**10**	**Part I 1,2,3,4,5,6,7,8,9,10**	**10 item x 5 score**	**50**
2.	**Verb**	**10**	**Part II 1,2,3,4,5,6,7,8,9,10**		**50**
					100

There are two essential aspects to find more information about the specific tests; those are Instrumentation Validity and Instrumentation Reliability. These two aspects are explained in the following paragraph.

[12]Suharsimi, *Ibi*d. p. 21.
[13]H. Douglas Brown, *Language Assessment, Principles and Classroom Practice,* (New York: Pearson Education, 2004), p. 3.

1. Instrumentation Validity

Validity is an important key to effective research. If a piece of research is invalid then it is worthless. Validity thus a requirement for both quantitative and qualitative/naturalistic research. There are several different kinds of validity:[14]

a. Content validity
b. Criterion validity
c. Construct validity
d. Internal validity
e. External validity
f. Concurrent validity
g. Face validity
h. Jury validity
i. Predictive validity
j. Consequential validity
k. Systemic validity
l. Catalytic validity
m. Ecological validity
n. Cultural validity
o. Descriptive validity
p. Interpretive validity
q. Theoretical validity
r. Evaluation validity

While, AnasSudijono states that Validity is a characteristic of the good test. To get the validity of an achievement test can be used two ways:[15]

a. Totality of the test validity

b. Item validity

In this research, the researcher used item validity to get the validity of instrumentation. Item validity is a part of the test as a totality to measure the test

[14]Louis Cohen., et al., *Methods in Education (Sixt Edition)*. (New York: Routledge, 2007), p. 133.

[15]AnasSudijono, *PengantarEvaluasiPendidikan* (Jakarta: PTRaja GrafindoPersada, 1996), p. 163.

by items. Validity is the most important quality of a test. It is the degree to which a test measures what it is supposed to measure andconsequently permits appropriate interpretations of test scores.There are three main point forms of validity are:

a. Contentvalidity

b. Predictive validity

c. Constructvalidity.

In this research, the researcher used content validity to establish validity of the instrument. Content validity is of prime importance for achievement test. Content validity is determined by expert judgment of item and sample validity.[16]

So, to get the validity of the test, the researcher used the *Correlation PointBiserial*as follow:

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

Where:

r_{pbi}= Number of index Correlation Point Biserial

Mp= average of the score of the students answer correctly

Mt=average of the total score that achieved success by member of the test

SD_t= Standard of Deviation

P= Proposition of the students answer correctly

$$p = \frac{Totalofthestudentswhoanswercorrectly}{Totalofthestudents}$$

[16]*Ibid.,* p. 161.

q= Proposition of the incorrect answer students

Validity is to show how far the test can be testing to get the data. In this research, test validity had been done by using formulation of product moment. The test is valid if $r_{count} > r_{table}$.

From the result of the analysis 25 instrument test, where 25 for pre-test.researcher concluded that for pre-test only 20are categorized valid and 5are categorized invalid. So, researcher conducted 20 items for control class and 20 items for experiment class.

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

2. Instrumentation Reliability

Another requirement is also important for a researcher is reliability. Reliability is the degree to which a test consistently measures whatever it measures. Reliability is express numerically, usually as a coefficient ranging from 0.0 to 1.0; a high coefficient ranging indicates high reliability.[17]

Testing of instrument reliability was done with the technique of KR.20 (Kurder Richardson) formula, as follow:

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

Where:

[17]L.R. Gay and Peter Airasian, *Educational Research*... p. 155.

r_1= Reliability of the test

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

P= Proportion of the students answer correctly

q= Proportion of students answer incorrectly

n= Total of the items

S_t= Standard of deviation of the test

Result of calculation the reliability of the items (r_{11}) is determined whether$r_{11} > r_{table}$with the significant level 5 % (0.05) with the table r product moment. So that, the items is reliable

Criteria of test reliability is as follows:[18]

< 0.20	Very low
0.20- 0.40	Low
0.41 - 0.70	Enough
0.71 – 0.90	High
0.91 – 1.00	Very high

E. The Procedures of the Research

To got the data from the students the researcher collected the data by gave pre-test, treatment and post-test to students.

[18]AnasSudijono, *PengantarStatistikPendidikan* (Jakarta: Raja GrafindoPersada, 2008) p. 217-221.

1. **Pre-test**

The pre-test is conducted to find out the homogeneityof the sample. In the pre-test, the researcher gave some instructions how to answer the questions that had been done in test. The pre-test was conducted to find out the homogeneity of the sample. The function of the pre-test is to find the mean scores of the experimental class and conventional class before the researcher gave treatment. The researcher has some procedure. There were:

a. The researcher prepared the test consists of 20 items.
b. The researcher distributed the paper of the test to students of experimental class and control class.
c. The researcher explained what the students to do.
d. Gave time.
e. The students answered the questions.
f. Collected their paper test to researcher.
g. The researcher checked the answer of students to find the mean score of experimental and control class.

2. **Post-test**

After giving treatment, the researcher conducted a post-test which the different test with the pre-test, and has not been conducted in the previous of the research. This post-test is the final test in the research, especially measuring the treatment, whether is an effect or not. After conducting the post-test, the researcher

analyzed the data, and then, the researcher found out the effect of using pegwords method in the experimental class.

a. The researcher prepareed the test consists of 20 items.
b. The researcher distributed the paper of the test to students of experimental class and control class.
c. The researcher explained what students to do.
d. Gave time.
e. The students answered the question.
f. Collectted their paper test to researcher.
g. The researcher checked the answered of students and found the mean score of experimental and control class.

F. Technique of Data Analysis

In experimental design, the data analysisto find out the ability of the two groups the research pattern is being done toward experimental class and control class. After experimental process, two of classes were tested with using technique of data analysis as follow:

1. Normality Test

In Normality test, the data can be tested with Chi-quadrate:[19]

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

[19]Mardalis, *MetodePenelitian: SuatuPendekatan Proposal*, (Jakarta: BumiAksara, 2003), p. 85.

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 frequencyis hopedfrom the population.

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

2. Homogeneity Test

Homogeneity test was used to know whether control class and experimental class have the same variant or not. If the both of classes are same, it is can be called homogeneous. To test it, researcher used formula as follow:[20]

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

Where:

n_1= Total of the data that bigger variant

n_2= Total of the data that smaller variant.

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

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

[20] *Ibid*. p. 250.

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

3. Hypothesis Test

In analysis data, researcher used t-test to test hypothesis, as follow:[21]

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

Where:

T :The value which the statistical significance

M 1 : The average score of the experimental class

M2 :The average score of the control class

X_1^2 : Deviation of the experimental class

X_2^2 :Deviation of the control class

n_1 : Number of experimental class

n_2 :Number of control class

[21] *Ibid*.,p. 311.

CHAPTER IV

THE RESULT OF RESEARCH

In this chapter, in order to evaluate the effect of Pegwords Method on Students' Vocabulary Mastery at Grade VII of SMP N 2 Padangsidimpuan, the researcher has calculated the data using pre-test and post-test. Applying quantitative analysis, the researcher used the formulation of t-test. Then, researcher described the result based on the data as follow.

A. Description of Data

1. Description of Data BeforeUsing Pegwords Method

a. Score of Pre-Test Experimental Class

Tabel VI
The Score of Experimental Class in Pre-Test

Total	1615
Highest score	65
Lowest score	35
Mean	59.9
Median	56.25
Modus	58.1
Range	30
Interval	5
Standart deviation	8.25
Varians	71.29

Based on the table above the total score of experiment class in pre-test was 1615, mean was 59.9, standart deviation was 8.25, varians was 71.29, median was 56.25, range was 30,modus was 58.1, interval was 5. The researcher got the highest score was 65 and the lowest score was 35 .

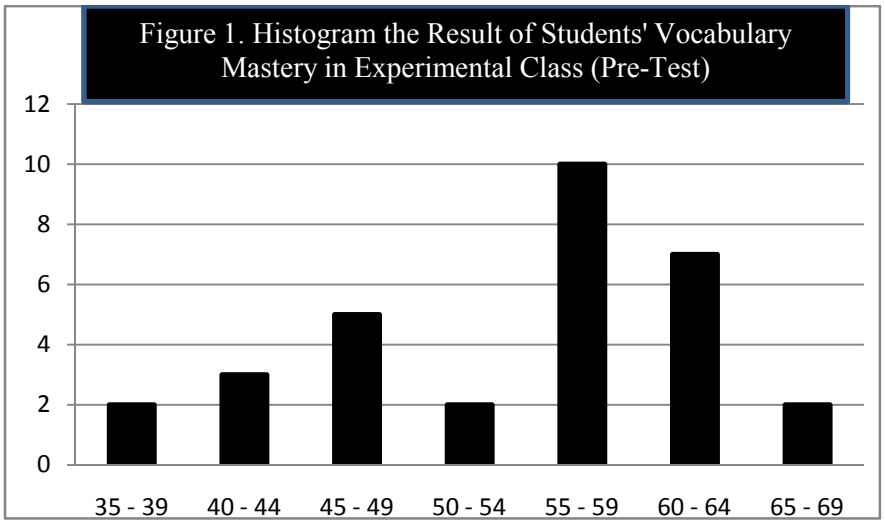
Then, the computed of the frequency distribution of the students' score of experiment class in pre-test could be applied into table frequency distribution as follow:

Table VII
Frequency Distribution of Students' Score

No	Interval	Frequency	Percentages
1	35-39	2	6.45%
2	40-44	3	9.67%
3	45-49	5	16.12%
4	50-54	2	6.45%
5	55-59	10	32.25%
6	60-64	7	22.5%
7	65-69	2	6.45%
$i = 5$		31	

From the table frequency distribution above shown that the students'score is there in class interval between 35-39 was 2 students (6.45%), class interval between 40-44 was 3 students (9.67%), class interval between 45-49 was 5 students (16.12%), class interval between 50-54 was 2 students (6.45%), class interval between 55-59 was 10 students (32.25%), class interval between 60-64 was 7 students (22.5%). The last class interval between 65-69was 2 students (6.45%).

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



From the histogram of students' score of experimental class in pre-test shown that the lowest interval 35-39 was 2students and highest interval 65-69 was only 2 students. Histogram also shows that the highest frequency in interval 55-59 was only 10 students.

b. Score of Pre Test Control Class

Tabel VIII
The Score of Control Class in PreTest

Total	1575
Highest score	70
Lowest score	40
Mean	55.75
Median	57.8
Modus	55.75
Range	30
Interval	5
Standart deviation	9.31
Varians	90.04

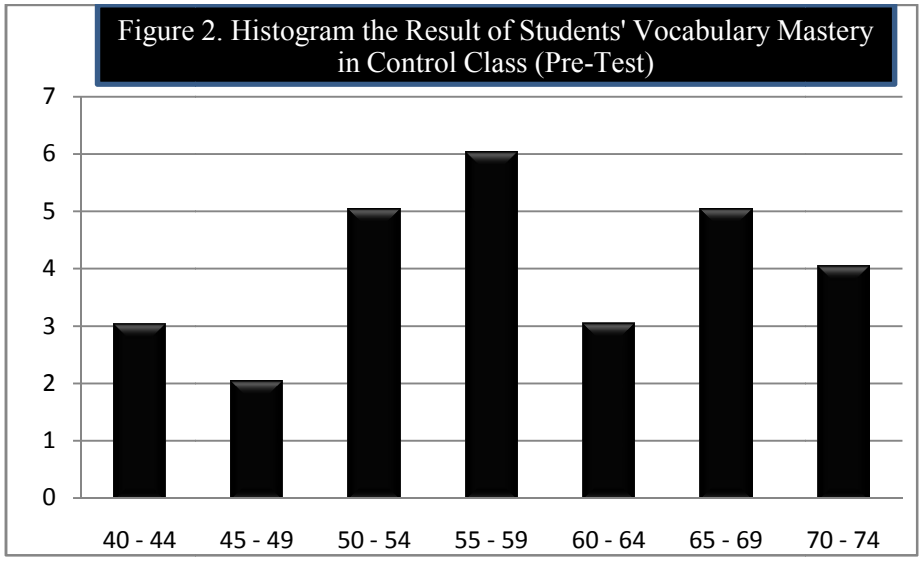
Based on the table above the total score of control class in pre-test was 1575, mean was 55.75, median was 57.8, modus was 55.75, range was 30, interval was 5, standart deviation was 9.31, varians was 90.04. The researcher got the highest score was 70, and the lowest score was 40. Then, the computed of the frequency distribution of the students' score of control class in pre-test could be applied into table frequency distribution as follow:

Table IX
Frequency Distribution of Students' Score

No	Interval Class	F	Percentages
1	40-44	3	10.7 %
2	45 - 49	2	7.14 %
3	50- 54	5	17.8 %
4	55 - 59	6	21.4%
5	60- 64	3	10.7 %
6	65- 69	5	17.8%
7	70 - 74	4	14.2 %
i = 5		28	

From the table frequency distribution above shown that the students'score is there in class interval between 40-44 was 3 students (10.7%), class interval between 45-49 was 2 students (7.14%), class interval between 50-54 was 5 students (17.8%), class interval between 55-59 was 6 students (21.4%), class interval between 60-64 was 3 students (10.7%), class interval between 65-69 was 5 students (17.8%). The last class interval between 70-74 was 4 students (14.2%).

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



From the histogram of students' score of control class in pre-test shown that the lowest interval 40-44 was 3 students and highest interval 70-74 was only 4 students. Histogram also shows that the highest frequency in interval 55-59.

2. Description of Data After Using Pegwords Method

a. Score Post-Test of Experimental Class

Tabel X
Score of Experimental Class in Post-Test

Total	2520
Highest score	95
Lowest score	65
Mean	80.75
Median	82.55
Modus	81.7
Range	30
Interval	5

Standart deviation	8.7
Varians	78.27

Based on the table above the total score of experiment class in post-test was 2520, mean was 80.75, median was 82.55, modus was81.7, range was 30, interval was 5, standart deviation was 8.7, varians was 78.27. The researcher got the highest score was 95 and the lowest score was 65 .

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

Table XI
The Frequency Distribution of Students' Score

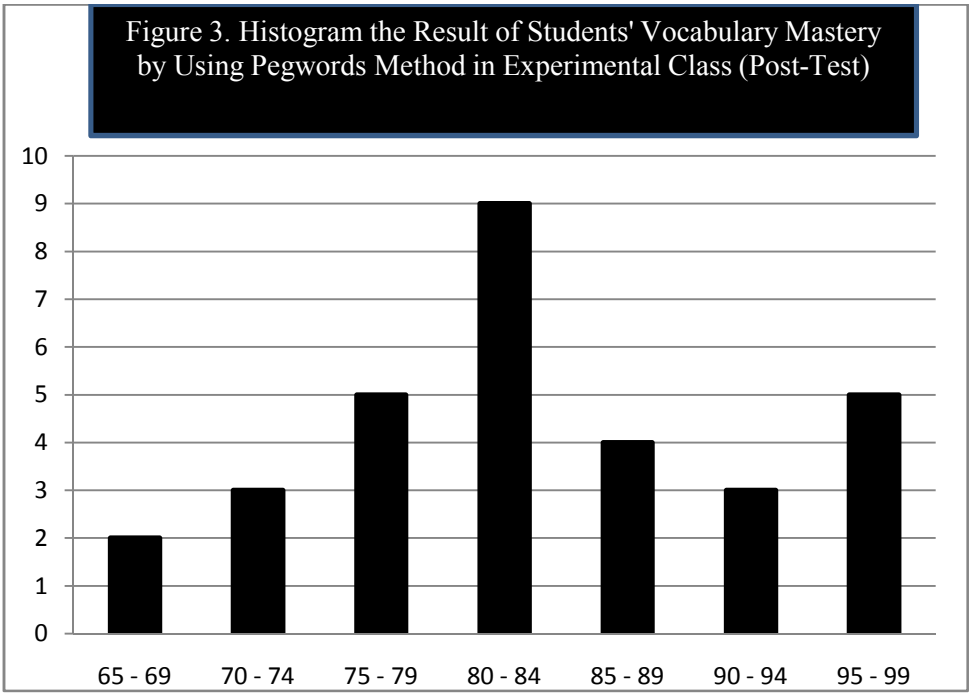
No	Interval Class	F	Percentages
1	65 – 69	2	6.45%
2	70 – 74	3	9.67%
3	75 – 79	5	16.1%
4	80 – 84	9	29.0%
5	85 – 89	4	12.9%
6	90 – 94	3	9.67%
7	95 – 99	5	16.1%
$i = 5$		31	

From the table frequency distribution above shown that the students'score is there in class interval between 65-69 was 2 students (6.45%), class interval between 70-74 was 3 students (9.67%), class interval between 75-79 was 5 students (16.1%), class interval between 80-84 was 9 students (29.0%), class interval between 85-89 was 4 students

(12.9 %), class interval between 90-94 was 3 students (9.67%). The last class interval between 95-99 was 5 students (16.1%).

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

Figure 3. Histogram the Result of Students' Vocabulary Mastery by Using Pegwords Method in Experimental Class (Post-Test)



From the histogram of students' score of experimental class in post-test shown that the lowest interval 65-69 was 2 students and highest interval 95-99 was only 5 students. Histogram also shows that the highest frequency in interval 80-84 was only 9 students.

b. Score of Control Class in Post-Test

Tabel XII
The Score of Control Class in Post-Test

Total	1655
Highest score	75
Lowest score	45
Mean	62.85
Median	62.5

Modus	62.35
Range	30
Interval	5
Standart deviation	8
Varians	66.76

Based on the table above the total score of control class in post-test was 1655 ,mean was 62.85, standart deviation was 8, varians was 66.76, median was 62.5, modus was 62.35, range was 30, interval was 5. The researcher got the highest score was 75 and the lowest 45 score was .

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

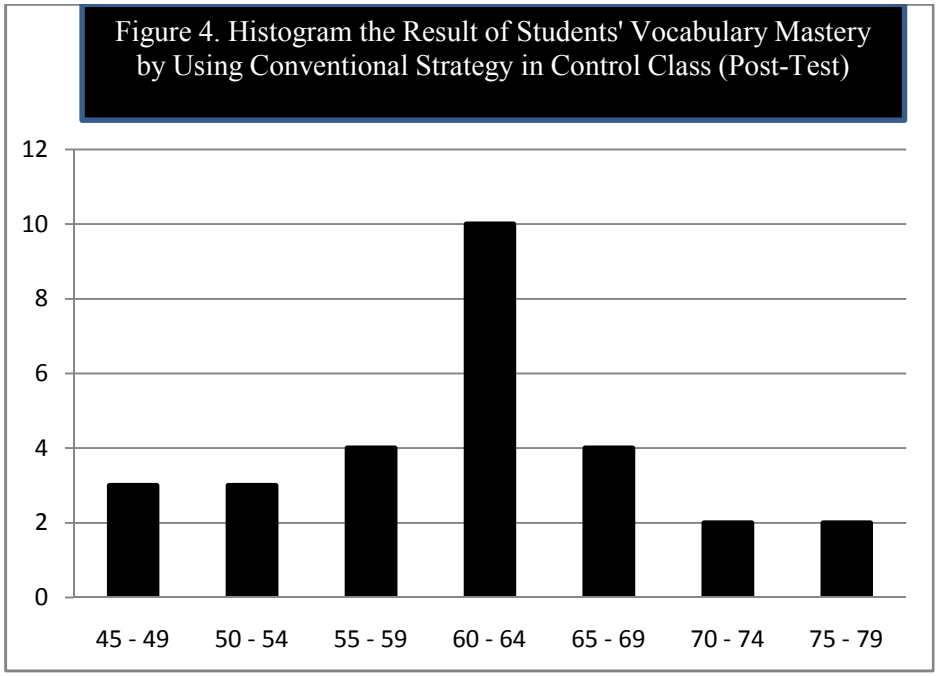
Table XIII
Frequency Distribution of Students' Score

No	Interval Class	F	Percentages
1	45–49	3	10.7%
2	50–54	3	10.7%
3	55–59	4	14.2%
4	60–64	10	35.7%
5	65–69	4	14.2%
6	70–74	2	7.14%
7	75 – 79	2	7.14%
i = 5		28	

From the table frequency distribution above shown that the students'score is there in class interval between 45-49 and 50-54 was 3 students (10.7%), class interval between 55-59 was 4 students (14.2%), class interval between 60-64 was10 students (35.7%), class interval

between 65-69 was 4 students (14.2%). The last class interval between 70-74 and 75-79 was 2 students (7.14%).

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



From the histogram of students' score of control class in post-test shown that the lowest interval 45-49 was 3 students and highest interval 75-79 was only 2 students. Histogram also shows that the highest frequency in interval 60-64 was only 10 students.

B. Data Analysis

1. Requirement test

a. Normality and Homogeneity Pre-Test

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

Tabel XIV
Normality and Homogenity in Pre-Test

Class	Normality Test		Homogeneity Test	
	t_{count}	t_{table}	t_{count}	t_{table}
Experiment Class	4.61	5.991	1.26<2.042 & 2.052	
Control Class	1.31	5.991		

Based on the table above researcher calculation, the score of exsperiment class Lo=4.61<Lt=5.991 with n =31and control class Lo=1.31< Lt=5.991 with n =28, and real level α 0.05. Cause $_{Lo}$ < Lt in the both class. So,H_o was accepted. It mean that experiment class and control class were distributed normal.(See appendix 17 and 18).

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

Then, the coefficient of F_{count} = 1.26was compared with F table. Where F table was determined at real α =0.05, and the same numerator dk=N-1= 31-1=30 and denominator dk N-1= 28–1= 27 So, by using the list of critical value at F distribution is got $F_{0.05}$=2.042. It showed that F_{count} (1.26)< F_{table} (2.042). So, it could be concluded that the variant from the data of the students' Vocabulary Mastery at SMPNegeri 2

Padangsidimpuan by experimental and control class in pre-test was homogen. The calculation can be seen on the appendix 18.

b. Normality and Homogeneity Post Test

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

Tabel XV
Normality and homogenity in post-test

Class	Normality Test		Homogeneity Test	
	t_{count}	t_{table}	t_{count}	t_{table}
Experiment Class	2.41	5.991	1.17<2.042 & 2.052	
Control Class	-1.55	5.991		

Based on the table aboveresearcher calculation, the score of eksperimental class Lo=2.41< Lt=5.991 with n =31 and control class Lo=-1.55< Lt=5.991 with n=28, real level α was 0.05, Cause $_{Lo}$ < Lt in the both class. So,H_a was accepted, it mean that experiment class and control class were distributed normal. The calculation can be seen on the appendix 21.

2) Homogenity of Experimental Class and Control Class in Post-Test

Then, the coefficient of F_{count} =1.17was compared with F table. Where F table was determined at real α =0.05, and the same numerator dk=N-1= 31-1=30 and denominator dk N-1= 28–1=27 So, by using the list of critical value at F distribution was got $F_{0.05}$=2.042 & 2.052. It showed that F_{count} (1.17) < F_{table} (2.042). So, it could be concluded that

the variant from the data of the students' Vocabulary Mastery at SMP N2 Padangsidimpuanby experimental and control class was homogeny. The calculation can be seen on the appendix 22.

2. Hypothesis Test

The data would be analyzed to prove hypothesis by using formula of T-test. Hypothesis alternative (H_a) of research was "There is the effect of Pegwords Method on Students'Vocabulary Mastery. The result of the researcher calculation could be seen as in the following table:

Table XVI
Result of T-test from the Both Averages

Pre-test		**Post-test**	
t_{count}	t_{table}	t_{count}	t_{table}
-1.89	2.000	8.48	2.000

The test hypotheses it means that hypotheses (H_a) was accepted.So, there isthesignificant effect of Pegwords Method on Students' Vocabulary Mastery. It described the mean score of experiment class by using Pegwords methodwas 80.75, and mean score of control class in using Conventional strategy was62.85. So, From the explanation above, the students' vocabularymastery by using Pegwords Method is better than conventional strategy $(\mu_1 > \mu_2)$.

C. Discussion

Based on the theory and related findings, the researcher discussed what was found. First, memory theory assumes that the visual imagery associate with

memories it permanently fixed into long term memory and the other theory is psicology development assumes that concentration the students will increase their attention to remember vocabulary in their memory better. In addition, pegwords method can increase students' mastery in learning vocabulary. Pegwords method has effect on students' vocabulary mastery.

Second, the mean score result of a research with the tittle "The Effectiveness of Mnemonic Devices in Vocabulary Learning Process (a pre experiment study at the fifth grade of SD Babakan 1 2009)" by using Mnemonic Deviceswas 90.53. The hypothesis concluded that this strategy was better than conventional strategy. Next, Sri NardaniHasibuan is" The Effect of Watching Film to Students' Vocabulary Mastery at Grade XI SMK Negeri 1 Padangsidimpuan". The concluding of her research, there is the effect of watching film to students' vocabulary mastery, were the mean score after using watching film was 86.66 and mean score before using watching film was 83.25. So, the implication of watching film is better than conventional strategy.

The last, the research with tittle "The Effect of Using Media Video Dora the Explorer to Students' Vocabulary Mastery at SD Negeri 200201/4 Padangsidimpuan" the implication of Media Video Dora the Explorer was better than conventional strategy with mean score 93.26. So, the implication of using media video dora the explorer is better than conventional strategy.

In this research, researcher found the students' vocabulary mastery score in experimental class was bigger than in control class. It can be seen of the

calcultion that indicate $t_{count} > t_{table}$ (8.48 > 2.000). So, researcher concluded that in learning vocabulary, pegwords method is effective than conventional method.

D. Threats of the Research

In this research, the researcher found the threats of this research as follows:

1. There are some students that are lack of serious to answer the test in pre-test and post-test.It can be the threat of the research. So, the researcher can not reach the validity of trustworthiness data.
2. The limited ofgrating test, therefore students are difficult to answer the test.
3. The learning implementation is not effective, it caused by the limited time.

Based on the threats above, the researcher tried with all efforts, work hard and with a vengeance as much as possible to do the best in this research. The researcher can complete this thesis also with the assistance of all parties and consultation with the advisors.

CHAPTER V

CONCLUSION AND SUGGESTION

A. Conclusion

Based on the result of the research and calculation of the data that had described in the previous chapter, the researcher got the conclusionsas follows:

1. Students' vocabulary mastery in conventional class before used pegwords method where the mean score was 62.85 .
2. Students' vocabulary mastery in experimental class after used pegwords method where the mean score was 80.75
3. There is the significant effect of Pegwords Method on Students' Vocabulary Mastery at Grade VII of SMP Negeri 2 Padangsidimpuan. It can be seen from the calculation of t_{count} was 8.48 while t_{table} score was 2.000 the hypothesis alternative (H_a) is accepted. Researcher concluded the hypotheses was accepted because t_{count} biggger than t_{table} (8.48>2.000). In which the mean score of experiment bigger than control class (80.75>62.85). So, there is effect of pegwords method on students' vocabulary mastery at grade VII of SMP Negeri 2 Padangsidimpuan.

B. Suggestion

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

1. The English teachers, to improve and increase learners' mastery in teaching vocabulary by using pegwords method. One of the efficient and effectivethat can increase vocabulary mastery wasthrough pegwords method. To teach as well as possibble by maximizing the using of pegwords method in learning process, because through this research, it was significantly proven that this method increased the students' vocabulary mastery.
2. The students, the pegwords method was expected to increase students' interest, motivation and memorize easily in learning process, especially in learning vocabulary.
3. Other researcher, the findings of this research wereto develop all information and knowledge for those who are interested in doing research related to this research.

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CURRICULUM VITAE

A. IDENTITY

Name	: CICI HAFSAH SIPAHUTAR
Reg. No	: 11 340 0051
Place / Birthday	: Bandar Selamat / October, 11th 1992
Sex	: Female
Religion	: Moslem
Address	: Bandar Selamat, Kec. Aek Kuo, Kab. Labuhanbatu Utara

B. PARENTS

Father's name	: Nikmat Sipahutar
Mother's name	: Suwarni Simangunsong

C. EDUCATIONAL BACKGROUND

1. Elementary School : SD N 115489 Aek Kuo (2005)
2. Junior High School : SMP N 1 Aek Natas (2008)
3. Senior High School : SMA N 1 Aek Natas (2011)
4. Institute : IAIN Padangsidimpuan (2015)

Appendix I

Experimental Class

RENCANA PELAKSANAAN PEMBELAJARAN

(RPP)

NamaSekolah : SMP N 2Padangsidimpuan

Mata Pelajaran : BahasaInggris

Kelas/ Semester : VII (Tujuh)/ II (Dua)

Aspek/ Sub Skill : Vocabulary

AlokasiWaktu : 2 x 45 Menit

1. **StandarKompetensi** : 1.1 MenemukanKosa kata baru
2. **KompetensiDasar** : 2.1 Siswa mampu menghubungkan gambar dan nomor dengan kosa kata baru dalam bentuk Noun dan Verb
3. **Indikator** : 3.1 Menghubungkan gambar dan nomor dengan kosa kata baru dalam bentuk Noun

   3.2 Menghubungkan gambar dan nomor dengan kosa kata baru dalam bentuk Verb

   3.3 Siswa dapat melengkapi pertanyaan pada gambar dan nomor

3.4 Siswa dapat merespon pertanyaan

4. **Tujuan Pembelajaran** : 4.1 Melalui kegiatan menghubungkan gambar dan nomor (Pegword Method), siswa mampu membedakan kosa kata yang berbentuk noun and verb

4.2 Melalui kegiatan menghubungkan gambar dan nomor (Pegword Method), siswa mampu menemukan kosa kata baru

5. **MateriPembelajaran** : Noun and Verb
6. **Learning Strategy** : PegwordsMethod
7. **Langkah- langkahKegiatan** :

a. KegiatanPendahuluan

1. Greeting
2. Mengabsensiswa
3. Memberimotivasipadasiswa
4. Memberigambaranpenjelasanmengenaimateriyangakandipelajarisertastrategi yang akandigunakan

b. KegiatanInti

1. Siswa memikirkan tentang informasi pertama untuk diingat.
2. Siswa memikirkan tentang pegword untuk nomor 1 (one). Pegword untuk nomor 1 (one) adalah gun.

3. Siswa menghubungkan pegword pada nomor 1 (one) dengan informasi pertama untuk diingat. Ciptakan suatu gambaran di dalam pikiran tentang hubungan pegword dan informasi yang diingat.
4. Siswa menghubungkan gambar dengan nomor.
5. Siswa mengulang langkah 1-4untuk masing-masing informasi yang diingat. Gunakan pegword show untuk informasi kedua 2 (two), coffee untuk informasi ketiga 3 (three) dan selanjutnya.

c. KegiatanPenutup

1. Memberikan penilaian berupa latihan-latihan untuk mengetahui sejauh mana kemampuan siswa.

8. SumberBelajar:

a. Buku teks yang relevan

b. Alat peraga

c. *Picture,* Objek yang relevan

d. *Kamus*

9. Penilaian

a. Tehnik : Meresponpertanyaansecaratertulis

a. Bentuk : Pertanyaantertulis

b. Intrumen

The Indicators of Value (Vocabulary Mastery)

No.	Indicators	Items	Number Items	Score	Total Score
1.	**Noun**	**10**	**Part 1. 1,2,3,4,5,6,7,8,9,10**	**10 item x 5 score**	**50**
2.	**Verb**	**10**	**Part II. 1,2,3,4,5,6,7,8,9,10**		**50**
					100

10. PedomanPenilaian

a. Jumlahskormaksimal x 5 = 20

b. Nilaimaksimal = 100

c. Nilaisiswa = $\frac{\text{SkorPerolehan}}{\text{SkorMaksimum}}$ x 100

d. Menghitungnilai rata-rata siswa

$$\mathbf{M} = \frac{\sum \mathbf{fX}}{\mathbf{N}}$$

Where:

M : Mean of the students

$\sum f X$: The frequency of students times total of scores

N : Total of students

Validator	Researcher
SOJUANGON RAMBE, S.S, M.Pd.	**CICI HAFSAH SIPAHUTAR**
NIP. 19790815 200604 1 003	**NIM. 11 340 0051**

Appendix 2

Control Class

RENCANA PELAKSANAAN PEMBELAJARAN

(RPP)

NamaSekolah : SMP N 2Padangsidimpuan

Mata Pelajaran : BahasaInggris

Kelas/ Semester : VII (Tujuh)/ II (Dua)

Aspek/ Sub Skill : Vocabulary

AlokasiWaktu : 2 x 45 Menit

1. **StandarKompetensi** : 1.1 MenemukanKosa kata baru
2. **KompetensiDasar** : 2.1 Siswa mampu menemukan kosa kata baru yaitu dalam bentuk Noun dan Verb

3. **Indikator** : 3.1 Siswa dapat Mengidentifikasi kosa kata baru dalam bentuk Noun
   3.2 Siswa dapat Mengidentifikasi kosa kata baru dalam bentuk Verb
   3.3 Siswa dapat melengkapi pertanyaan pada gambar
   3.4 Siswa dapat merespon pertanyaan

4. **Tujuan Pembelajaran** : 4.1Siswa mampu membedakan kosa kata yang berbentuk Noun and Verb
   4.2Siswa mampu menemukan kosa kata barudalam

bentuk Noun and Verb

5. **MateriPembelajaran** :Noun and Verb

6. **Learning Strategy** : Conventional Strategy

7. **Langkah- langkahKegiatan** :

1) KegiatanPendahuluan

- Greeting
- Mengabsensiswa
- Memberimotivaspadasiswa
- Memberigambaranpenjelasanmengenaimateri yang akandipelajarisertastrategi yang akandigunakan

2) KegiatanInti

- Guru menyajikan bahan ajar yang berhubungan dengan pelajaran.
- Menggunakan alat visualisasi,seperti papan tulis atau mediayang tersedia untuk menjelaskan pokok bahasan yang disampaikan.
- Guru memberikan penjelasan tentang kosa kata yang akan dipelajari.
- Guru menempelkan gambar dan nomor.
- Setelahitu guru memintasiwauntukmenghubungkan gambar dengan nomor yang cocokdengansoal yang diberikan.
- Memfasilitasi terjadinya interaksi antarpeserta didik dan guru, lingkungan dan lainnya.
- Melibatkan siswa secara aktif dalam setiap kegiatan pembelajaran.
- Guru memberikan pertanyaan-pertanyaan mengenai pelajaran untuk menguji pemahaman siswa.

3) KegiatanPenutup

- Guru bersama siswa memberi simpulan tentang materi yang dipelajari dan mencatat informasi yang penting.

- Memberikan penilaian berupa latihan-latihan untuk mengetahui sejauh mana kemampuan siswa.

8. SumberBelajar:

a. Buku teks yang relevan

b. Alat peraga

c. *Picture*, Objek yang relevan

d. *Kamus*

9. Penilaian

a. Tehnik : Meresponpertanyaansecaratertulis

a. Bentuk : Pertanyaantertulis

b. Intrumen

The Indicators of Value (Vocabulary Mastery)

No.	Indicators	Items	Number Items	Score	Total Score
1.	**Noun**	**10**	**Part 1. 1,2,3,4,5,6,7,8,9,10**	**10 item x 5 score**	**50**
2.	**Verb**	**10**	**Part II. 1,2,3,4,5,6,7,8,9,10**		**50**
					100

10. PedomanPenilaian

a. Jumlahskormaksimal x 5 = 20

b. Nilaimaksimal = 100

c. Nilaisiswa = $\frac{\text{SkorPerolehan}}{\text{SkorMaksimum}}$ x 100

d. Menghitungnilai rata-rata siswa

$$\mathbf{M} = \frac{\sum \mathbf{fX}}{\mathbf{N}}$$

Where:

M : Mean of the students

$\sum f X$: The frequency of students times total of scores

N : Total of students

Appendix 3

Vocabulary Test for Pre-Test

Name :

Class :

Direction : Write down name for the following pictures!

Part 1 : Number 1-10 (Nouns)

1.  . . . . .

2.  . . . . .

3.  . . . . .

4.  . . . . .

5.  . . . . .

6.  . . . . .

7.  . . . . .

8.  . . . . .

9.  . . . . .

10.  . . . . .

Part II : Number 1-10 (Verbs)

1.  . . . . .

2.  . . . . .

3.  . . . . .

4.  . . . . .

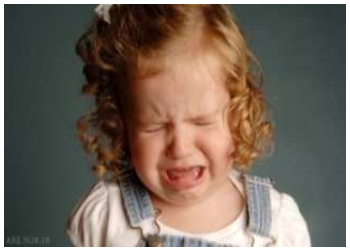
5.  . . . . .

6.  . . . . .

7.  . . . . .

8. 

. . . . .

9. 
. . . . .

10. 
. . . . .

Appendix 4

Vocabulary Test for Post-Test

Name :

Class :

Direction : Write down name for the following pictures!

Part 1 : Number 1-12 (Nouns)

1.  . . . . .

2. . . . .

3.  . . . . .

4.  . . . . .

5.  . . . . .

6.  . . . . .

7.  . . . . .

8.  . . . . .

9. . . . .

10.  . . . . .

11. ——————————— . . . . .

12.  . . . . .

13.  . . . . .

Part II : Number 1-12 (Verbs)

1.  . . . . .

2.  . . . . .

3.  . . . . .

4.  . . . . .

5.  . . . . .

6.  . . . . .

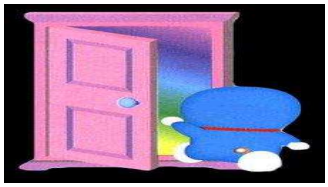
7.  . . . . .

8.  . . . . .

9.  . . . . .

10.  . . . . .

11.  . . . . .

12.  . . . . .

Validator,

Sojuangon Rambe, S.S, M.Pd

NIP. 19790815 200604 1 003

Appendix 5

Key Answer

A. Pre-Test

Part I

1. Buns	6. Bricks
2. Toes	7. Heaven
3. Coffee	8. Gate
4. Store	9. Wines
5. Cave	10. Hen

Part II

1. Hunt	6. Picks
2. Show	7. Shave
3. Flee	8. Fight
4. Pour	9. Whine
5. Receive	10. Listen

B. Post-Test

Part 1

1. Sun	6. Sticks
2. Shoe	7. Graven
3. Tree	8. Light
4. Door	9. Line
5. Bee hive	10. Pen

Part II

1. Run	6. Kick
2. Hoe	7. Blacken
3. See	8. Skate
4. Wore	9. Twine
5. Give	10. Open

Appendix 6

VALIDITY OF PRE TEST

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Xt	Xt²
1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	0	1	1	1	21	441
2	1	1	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	0	1	20	400
3	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	20	400
4	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	0	1	1	0	18	324
5	0	1	0	0	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	0	1	0	1	1	0	15	225
6	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	21	441
7	1	1	1	0	1	1	1	0	1	1	1	0	1	0	0	1	1	1	0	1	1	0	1	1	1	18	324
8	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	20	400
9	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	1	6	36
10	1	0	0	1	1	0	1	1	0	1	0	1	0	0	1	1	1	0	0	1	0	1	0	0	0	12	144
11	1	1	1	1	0	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	0	1	1	1	20	400
12	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	16
13	1	0	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	17	289
14	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	5	25
15	1	0	0	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	0	17	289
16	1	0	0	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	20	400
17	1	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	1	1	0	0	0	0	0	1	0	16	256
18	0	1	0	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	20	400
19	1	0	0	0	1	0	0	0	1	1	1	1	0	1	0	0	1	1	0	1	0	1	1	1	1	14	196
20	1	1	1	1	0	1	0	0	1	1	0	1	1	1	0	0	1	1	1	1	0	1	0	1	1	17	289
21	0	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	1	1	9	81
22	1	0	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	20	400
23	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	21	441
24	1	0	0	0	0	1	1	0	0	1	1	1	1	0	0	0	0	1	0	1	1	0	1	0	1	12	144
25	0	1	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	19	361
26	1	1	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	19	361
27	1	0	0	0	1	0	1	0	0	1	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	16	256
28	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	22	484
29	0	1	0	0	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	0	0	1	0	1	15	225
30	1	1	0	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	0	1	1	0	18	324

N= 30	22	19	8	10	18	22	23	21	21	23	16	24	25	21	12	21	23	26	11	22	22	13	23	24	22	**∑x = 492**	**∑xt² = 8772**
P	0,7	0,6	0,3	0,3	0,6	0,7	0,8	0,7	0,7	0,8	0,5	0,8	0,8	0,7	0,4	0,7	0,8	0,9	0,4	0,7	0,7	0,4	0,8	0,8	0,7		
Q	0,3	0,4	0,7	0,7	0,4	0,3	0,2	0,3	0,3	0,2	0,5	0,2	0,2	0,3	0,6	0,3	0,2	0,1	0,6	0,3	0,3	0,6	0,2	0,2	0,3		
Mp	17,22	18,36	18,87	13,90	17,33	18,59	17,86	18,04	18,60	17,91	18,50	17,50	17,52	17,71	18,91	18,33	17,73	17,46	19,09	17,54	17,63	16,15	17,34	17,62	17,59		
Rpbi	0,256	0,492	0,333	-0,337	0,234	0,687	0,602	0,513	0,690	0,622	0,433	0,454	0,462	0,410	0,422	0,604	0,548	0,657	0,452	0,357	0,386	0,004	0,388	0,504	0,372		
	Invalid	Valid	Invalid	Invalid	Invalid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Invalid	Valid	Valid	Valid		

Appendix 12

REABILITY OF PRE TEST

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Xt	Xt^2
1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	0	1	1	1	21	441
2	1	1	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	0	1	20	400
3	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	20	400
4	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	0	1	1	0	18	324
5	0	1	0	0	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	0	1	0	1	1	0	15	225
6	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	21	441
7	1	1	1	0	1	1	1	0	1	1	1	0	1	0	0	1	1	1	0	1	1	0	1	1	1	18	324
8	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	20	400
9	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	1	6	36
10	1	0	0	1	1	0	1	1	0	1	0	1	0	0	1	1	1	0	0	1	0	1	0	0	0	12	144
11	1	1	1	1	0	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	0	1	1	1	20	400
12	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	16
13	1	0	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	17	289
14	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	5	25
15	1	0	0	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	0	17	289
16	1	0	0	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	20	400
17	1	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	1	1	0	0	0	0	0	1	0	16	256
18	0	1	0	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	20	400
19	1	0	0	0	1	0	0	0	1	1	1	1	0	1	0	0	1	1	0	1	0	1	1	1	1	14	196
20	1	1	1	1	0	1	0	0	1	1	0	1	1	1	0	0	1	1	1	1	0	1	0	1	1	17	289
21	0	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	1	1	9	81
22	1	0	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	20	400
23	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	21	441
24	1	0	0	0	0	1	1	0	0	1	1	1	1	0	0	0	0	1	0	1	1	0	1	0	1	12	144
25	0	1	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	19	361
26	1	1	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	19	361
27	1	0	0	0	1	0	1	0	0	1	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	16	256
28	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	22	484
29	0	1	0	0	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	0	0	1	0	1	15	225
30	1	1	0	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	0	1	1	0	18	324

N= 30	22	19	8	10	18	22	23	21	21	23	16	24	25	21	12	21	23	26	11	22	22	13	23	24	22	**∑xt**	**∑xt²**
P	0,73	0,63	0,26	0,33	0,6	0,73	0,76	0,7	0,7	0,76	0,53	0,8	0,83	0,7	0,4	0,7	0,76	0,86	0,36	0,73	0,73	0,43	0,76	0,8	0,73	**492**	**8772**
Q	0,26	0,36	0,73	0,66	0,4	0,26	0,23	0,3	0,3	0,23	0,46	0,2	0,16	0,3	0,6	0,3	0,23	0,13	0,63	0,26	0,26	0,56	0,23	0,2	0,26		
P.Q	0,1898	0,2268	0,1898	0,2178	0,24	0,1898	0,1748	0,21	0,21	0,1748	0,2438	0,16	0,1328	0,21	0,24	0,21	0,1748	0,1118	0,2268	0,1898	0,1898	0,2408	0,1748	0,16	0,1898	4,8786	**∑pq**

Appendix 9

VALIDITY OF POST TEST

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Xt	Xt^2
1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1	20	400
2	1	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	0	1	1	1	1	1	1	20	400
3	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	20	400
4	1	0	1	1	1	1	0	1	0	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1	18	324
5	1	0	0	1	1	1	0	1	1	1	1	0	1	0	1	1	1	0	0	0	1	0	1	0	1	15	225
6	0	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1	0	0	0	1	0	1	0	0	0	12	144
7	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	20	400
8	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	4	16
9	0	1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	1	1	17	289
10	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	1	1	1	1	1	20	400
11	1	1	1	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	18	324
12	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	1	1	1	1	1	20	400
13	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	1	0	6	36
14	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	5	25
15	0	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	0	0	1	1	1	1	0	1	17	289
16	0	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	20	400
17	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	1	16	256
18	1	0	1	1	1	1	1	0	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	20	400
19	0	0	0	0	1	1	0	0	1	1	1	1	1	0	0	1	1	1	0	1	1	1	0	1	0	14	196
20	1	1	0	0	1	1	0	0	1	1	1	1	1	1	1	0	0	0	1	1	1	1	0	1	1	17	289
21	1	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	1	0	0	1	1	9	81
22	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	20	400
23	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	21	441
24	0	0	1	0	1	0	0	0	0	0	0	1	1	0	1	0	1	1	0	0	1	1	1	1	1	12	144
25	1	0	1	1	1	0	0	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	19	361
26	1	0	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0	0	1	1	1	1	1	1	19	361
27	0	0	1	0	0	1	0	1	1	1	0	1	1	0	0	1	1	0	1	1	1	1	1	1	1	16	256
28	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	22	484
29	1	0	0	1	1	1	1	1	1	0	1	0	0	0	0	1	1	1	1	0	0	1	0	1	1	15	225
30	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	0	18	324
N= 30	19	8	23	21	24	21	12	21	23	24	21	22	23	10	22	17	23	16	11	13	26	22	22	21	25	**∑x=**	**∑xt^2 = 8690**

P	0,6	0,3	0,8	0,7	0,8	0,7	0,4	0,7	0,8	0,8	0,7	0,7	0,8	0,3	0,7	0,6	0,8	0,5	0,4	0,4	0,9	0,7	0,7	0,7	0,8	**490**	
Q	0,4	0,7	0,2	0,3	0,2	0,3	0,6	0,3	0,2	0,2	0,3	0,3	0,2	0,7	0,3	0,4	0,2	0,5	0,6	0,6	0,1	0,3	0,3	0,3	0,2		
Mp	18,89	18,75	17,78	17,95	17,41	17,61	18,83	18,23	17,65	17,54	18,52	18,04	17,82	13,90	18,22	17,05	17,26	17,62	19,09	15,53	17,38	17,95	17.54	18,33	17,44		
Rpbi	0,651	0,330	0,604	0,513	0,450	0,405	0,425	0,601	0,550	0,504	0,694	0,541	0,622	-0,331	0,598	0,183	0,388	0,269	0,470	-0,136	0,657	0,513	0,383	0,633	0,462		
	Valid	Invalid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Invalid	Valid	Invalid	Valid	Invalid	Valid	Invalid	Valid	Valid	Valid	Valid	Valid		

Appendix 14

REABILITY OF POST TEST

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Xt	Xt²
1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1	20	400
2	1	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	0	1	1	1	1	1	1	20	400
3	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	20	400
4	1	0	1	1	1	1	0	1	0	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1	18	324
5	1	0	0	1	1	1	0	1	1	1	1	0	1	0	1	1	1	0	0	0	1	0	1	0	1	15	225
6	0	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1	0	0	0	1	0	1	0	0	0	12	144
7	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	20	400
8	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	4	16
9	0	1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	1	1	17	289
10	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	1	1	1	1	1	20	400
11	1	1	1	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	18	324
12	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	1	1	1	1	1	20	400
13	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	1	0	6	36
14	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	5	25
15	0	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	0	0	1	1	1	1	0	1	17	289
16	0	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	20	400
17	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	1	16	256
18	1	0	1	1	1	1	1	0	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	20	400
19	0	0	0	0	1	1	0	0	1	1	1	1	1	0	0	1	1	1	0	1	1	1	0	1	0	14	196
20	1	1	0	0	1	1	0	0	1	1	1	1	1	1	1	0	0	0	1	1	1	1	0	1	1	17	289
21	1	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	1	0	0	1	1	9	81
22	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	20	400
23	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	21	441
24	0	0	1	0	1	0	0	0	0	0	0	1	1	0	1	0	1	1	0	0	1	1	1	1	1	12	144
25	1	0	1	1	1	0	0	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	19	361
26	1	0	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0	0	1	1	1	1	1	1	19	361
27	0	0	1	0	0	1	0	1	1	1	0	1	1	0	0	1	1	0	1	1	1	1	1	1	1	16	256
28	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	22	484
29	1	0	0	1	1	1	1	1	1	0	1	0	0	0	0	1	1	1	1	0	0	1	0	1	1	15	225

30	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	0	18	324
N =30	19	8	23	21	24	21	12	21	23	24	21	22	23	10	22	17	23	16	11	13	26	22	22	21	25	**∑x= 490**	**∑xt² = 8690**
P	0,63	0,26	0,76	0,7	0,8	0,7	0,4	0,7	0,76	0,8	0,7	0,73	0,76	0,33	0,73	0,56	0,76	0,53	0,36	0,43	0,86	0,73	0,73	0,7	0,83		
Q	0,36	0,73	0,23	0,3	0,2	0,3	0,6	0,3	0,23	0,2	0,3	0,26	0,23	0,66	0,26	0,43	0,23	0,46	0,63	0,56	0,13	0,26	0,26	0,3	0,16		
P.Q	0,2268	0,1898	0,1748	0,21	0,16	0,21	0,24	0,21	0,1748	0,16	0,21	0,1898	0,1748	0,2178	0,1898	0,2408	0,1748	0,2438	0,2268	0,2408	0,1118	0,1898	0,1898	0,21	0,1328	4.8996	**∑pq**

Appendix 7

Table Validity of Pre- Test

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.	17.22	16.40	4.84	0.7	0.3	0.256	0.349	Invalid
2.	18.36	16.40	4.84	0.6	0.4	0.492	0.349	Valid
3.	18.87	16.40	4.84	0.3	07	0.333	0.349	Invalid
4.	13.90	16.40	4.84	0.3	0.7	-0.337	0.349	Invalid
5.	17.33	16.40	4.84	0.6	0.4	0.234	0.349	Invalid
6.	18.59	16.40	4.84	0.7	0.3	0.687	0.349	Valid
7.	17.86	16.40	4.84	0.8	0.2	0.602	0.349	Valid
8.	18.04	16.40	4.84	0.7	0.3	0.513	0.349	Valid
9.	18.60	16.40	4.84	0.7	0.3	0.690	0.349	Valid
10.	17.91	16.40	4.84	0.8	0.2	0.622	0.349	Valid
11.	18.50	16.40	4.84	0.5	0.5	0.433	0.349	Valid
12.	17.50	16.40	4.84	0.8	0.2	0.454	0.349	Valid
13.	17.52	16.40	4.84	0.8	0.2	0.462	0.349	Valid
14.	17.71	16.40	4.84	0.7	0.3	0.410	0.349	Valid
15.	18.91	16.40	4.84	0.4	0.6	0.422	0.349	Valid
16.	18.33	16.40	4.84	0.7	0.3	0.604	0.349	Valid
17.	17.73	16.40	4.84	0.8	0.2	0.548	0.349	Valid
18.	17.46	16.40	4.84	0.9	0.1	0.657	0.349	Valid
19.	19.09	16.40	4.84	0.4	0.6	0.452	0.349	Valid
20.	17.54	16.40	4.84	0.7	0.3	0.357	0.349	Valid
21.	17.63	16.40	4.84	0.7	0.3	0.386	0.349	Valid
22.	16.15	16.40	4.84	0.4	0.6	0.004	0.349	Invalid
23.	17.34	16.40	4.84	0.8	0.2	0.388	0.349	Valid
24.	17.62	16.40	4.84	0.8	0.2	0.504	0.349	Valid
25.	17.59	16.40	4.84	0.7	0.3	0.372	0.349	Valid

Appendix 10

Table Validity of Post- Test

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.	18.89	16.33	4.79	0.6	0.4	0.651	0.349	Valid
2.	18.75	16.33	4.79	0.3	0.7	0.330	0.349	Invalid
3.	17.78	16.33	4.79	0.8	0.2	0.604	0.349	Valid
4.	17.95	16.33	4.79	0.7	0.3	0.513	0.349	Valid
5.	17.41	16.33	4.79	0.8	0.2	0.450	0.349	Valid
6.	17.61	16.33	4.79	0.7	0.3	0.405	0.349	Valid
7.	18.83	16.33	4.79	0.4	0.6	0.425	0.349	Valid
8.	18.23	16.33	4.79	0.7	0.3	0.601	0.349	Valid
9.	17.65	16.33	4.79	0.8	0.2	0.550	0.349	Valid
10.	17.54	16.33	4.79	0.8	0.2	0.504	0.349	Valid
11.	18.52	16.33	4.79	0.7	0.3	0.694	0.349	Valid
12.	18.04	16.33	4.79	0.7	0.3	0.541	0.349	Valid
13.	17.82	16.33	4.79	0.8	0.2	0.622	0.349	Valid
14.	13.90	16.33	4.79	0.3	0.7	-0.331	0.349	Invalid
15.	18.22	16.33	4.79	0.7	0.3	0.598	0.349	Valid
16.	17.05	16.33	4.79	0.6	0.4	0.183	0.349	Invalid
17.	17.26	16.33	4.79	0.8	0.2	0.388	0.349	Valid
18.	17.62	16.33	4.79	0.5	0.5	0.269	0.349	Invalid
19.	19.09	16.33	4.79	0.4	0.6	0.470	0.349	Valid
20.	15.53	16.33	4.79	0.4	0.6	-0.136	0.349	Invalid
21.	17.38	16.33	4.79	0.9	0.1	0.657	0.349	Valid
22.	17.95	16.33	4.79	0.7	0.3	0.513	0.349	Valid
23.	17.54	16.33	4.79	0.7	0.3	0.383	0.349	Valid
24.	18.33	16.33	4.79	0.7	0.3	0.633	0.349	Valid
25.	17.44	16.33	4.79	0.8	0.2	0.462	0.349	Valid

Appendix 8

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)

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

$$M_t = \frac{492}{30} = 16.4$$

2. Standard Deviation (SD_t)

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

$$SD_t = \sqrt{\frac{8772}{30} - \left(\frac{492}{30}\right)^2}$$

$$SD_t = \sqrt{292.4 - 16.4^2}$$

$$SD_t = \sqrt{292.4 - 268.9} = \sqrt{23.5} = 4.84$$

3. Means Score (M_p)

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

$$M_{p1} = \frac{21+20+20+18+21+18+20+12+20+17+17+16+14+17+20+21+12+19}{16+22+18}$$

$$M_{p1} = \frac{379}{22} = 17.22$$

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

$$M_{p2} = \frac{21+20+20+18+15+21+18+20+20+16+20+17+9+21+19+19+22+15+18}{19}$$

$$M_{p2} = \frac{349}{19} = 18.36$$

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

$$M_{p3} = \frac{21+18+20+17+16+17+20+22}{8}$$

$$M_{p3} = \frac{151}{8} = 18.87$$

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

$$M_{p4} = \frac{6+12+20+4+17+5+16+17+20+22}{10}$$

$$M_{p4} = \frac{139}{10} = 13.9$$

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

$$M_{p5} = \frac{21+20+20+18+15+21+18+12+17+20+16+20+14+9+16+22+15+18}{18}$$

$$M_{p5} = \frac{312}{18} = 17.33$$

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

$$M_{p6} = \frac{21+20+20+18+15+21+18+20+6+20+17+20+16+20+17+9+20+21+12+19+19+22+18}{22}$$

$$M_{p6} = \frac{409}{22} = 18.59$$

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

$$M_{p7} = \frac{21+20+20+18+21+18+20+12+20+4+17+17+20+16+20+20+21+12+19+19+16+22+18}{23}$$

$$M_{p7} = \frac{411}{23} = 17.86$$

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

$$M_{p8} = \frac{21+20+20+18+15+21+20+12+20+4+17+17+20+20+20+21+19+19+22+15+18}{21}$$

$$M_{p8} = \frac{379}{21} = 18.04$$

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

$$M_{p9} = \frac{21+20+20+18+15+21+18+20+20+17+20+16+14+17+20+21+19+19+22+15+18}{21}$$

$$M_{p9} = \frac{391}{21} = 18.6$$

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

$$M_{p10} = \frac{21+20+20+18+15+21+18+20+12+20+17+17+20+16+20+14+17+20+21+12+19+16+18}{23}$$

$$M_{p10} = \frac{412}{23} = 17.91$$

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

$$M_{p11} = \frac{21+20+18+21+18+20+17+20+14+20+21+12+19+22+15+18}{16}$$

$$M_{p11} = \frac{298}{16} = 18.5$$

Item 12 $M_{p12} = \frac{\text{the total of students score that answer true item}}{n12}$

$$M_{p12} = \frac{21+20+20+18+15+21+20+6+12+17+17+20+16+20+14+17+20+21+12+19+19+22+15+18}{24}$$

$$M_{p12} = \frac{420}{24} = 17.5$$

Item 13 $M_{p13} = \frac{\text{the total of students score that answer true item}}{n13}$

$$M_{p13} = \frac{21+20+20+18+15+21+18+20+20+17+5+17+20+16+20+17+9+20+21+12+19+19+16+22+15}{25}$$

$$M_{p13} = \frac{438}{25} = 17.52$$

Item 14 $M_{p14} = \frac{\text{the total of students score that answer true item}}{n14}$

$$M_{p14} = \frac{21+20+20+18+15+21+20+17+5+17+20+16+20+14+17+21+19+16+22+15+18}{21}$$

$$M_{p14} = \frac{372}{21} = 17.71$$

Item 15 $M_{p15} = \frac{\text{the total of students score that answer true item}}{n15}$

$$M_{p15} = \frac{20+21+20+12+20+17+20+20+21+19+22+15}{12}$$

$$M_{p15} = \frac{227}{12} = 18.91$$

Item 16 $M_{p16} = \frac{\text{the total of students score that answer true item}}{n23}$

$$M_{p16} = \frac{21+20+20+18+15+21+18+20+12+20+17+17+20+16+21+19+19+16+22+15+18}{21}$$

$$M_{p16} = \frac{385}{21} = 18.33$$

Item 17 $M_{p17} = \frac{\text{the total of students score that answer true item}}{n17}$

$$M_{p17} = \frac{21+20+20+15+21+18+20+12+20+17+20+16+20+14+17+9+20+21+19+19+16+15+18}{23}$$

$$M_{p17} = \frac{408}{23} = 17.73$$

Item 18 $M_{p18} = \frac{\text{the total of students score that answer true item}}{n18}$

$$M_{p18} = \frac{21+20+20+18+15+21+18+20+20+4+17+17+20+16+20+14+17+9+20+21+12+19+19+16+22+18}{26}$$

$$M_{p18} = \frac{454}{26} = 17.46$$

Item 19 $M_{p19} = \frac{\text{the total of students score that answer true item}}{n19}$

$$M_{p19} = \frac{20+20+20+20+17+20+21+19+16+22+15}{11}$$

$$M_{p19} = \frac{210}{11} = 19.09$$

Item 20 $M_{p20} = \frac{\text{the total of students score that answer true item}}{n20}$

$$M_{p20} = \frac{10+20+18+21+18+20+12+20+17+17+20+20+14+17+21+12+19+19+16+22+15+18}{22}$$

$$M_{p20} = \frac{386}{22} = 17.54$$

Item 21 $M_{p21} = \frac{\text{the total of students score that answer true item}}{n21}$

$$M_{p21} = \frac{21+20+20+18+15+21+18+20+6+20+5+17+20+20+20+21+12+19+19+16+22+18}{22}$$

$$M_{p21} = \frac{388}{22} = 17.63$$

Item 22 $M_{p22} = \frac{\text{the total of students score that answer true item}}{n22}$

$$M_{p22} = \frac{20+6+12+17+20+20+14+17+20+19+19+16+22}{13}$$

$$M_{p22} = \frac{210}{13} = 16.15$$

Item 23 $M_{p23} = \frac{\text{the total of students score that answer true item}}{n16}$

$$Mp_{23} = \frac{21+20+20+18+15+21+18+20+6+20+17+20+20+14+9+20+21+12+19+19+16+15+18}{23}$$

$$M_{p23} = \frac{399}{23} = 17.34$$

Item 24 $M_{p24} = \frac{\text{the total of students score that answer true item}}{n24}$

$$M_{p24} = \frac{21+20+18+15+21+18+20+20+17+5+17+20+16+20+14+17+9+20+21+19+19+16+22+18}{24}$$

$$M_{p24} = \frac{423}{24} = 17.62$$

Item 25 $M_{p25} = \frac{\text{the total of students score that answer true item}}{n25}$

$$M_{p25} = \frac{21+20+20+21+18+20+6+20+17+20+20+14+17+9+20+21+12+19+19+16+22+15}{22}$$

$$M_{p25} = \frac{387}{22} = 17.59$$

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

Item 1 $r_{pbi} = \frac{M_p - M_t}{SD_t}\sqrt{\frac{p}{q}}$

$$r_{pbi} = \frac{17.22-16.4}{4.84}\sqrt{\frac{0.7}{0.3}}$$

$$r = \frac{0.82}{4.84}\sqrt{2.33}$$

r = 0.169 x 1.52 = 0.256

Item 2 $r_{pbi} = \frac{18.36-16.4}{4.84}\sqrt{\frac{0.6}{0.4}}$

$$r = \frac{1.96}{4.84}\sqrt{1.5}$$

r = 0.404 x 1.22 = 0.492

Item 3 $r_{pbi} = \frac{18.87-16.4}{4.84}\sqrt{\frac{0.3}{0.7}}$

$$r = \frac{2.47}{4.84}\sqrt{0.428}$$

r = 0.510 x 0.654 = 0.333

Item 4 $r_{pbi} = \frac{13.9-16.4}{4.84}\sqrt{\frac{0.3}{0.7}}$

$$r = \frac{-25}{4.84}\sqrt{0.428}$$

r = -0.516 x 0.654= -0.337

Item 5 $r_{pbi} = \frac{17.33-16.4}{4.84}\sqrt{\frac{0.6}{0.4}}$

r = $\frac{0.93}{4.84}\sqrt{1.5}$

r = 0.192 x 1.22= 0.234

Item 6 $r_{pbi} = \frac{18.59-16.4}{4.84}\sqrt{\frac{0.7}{0.3}}$

r = $\frac{2.19}{4.84}\sqrt{2.33}$

r = 0.452 x 1.52 = 0.687

Item 7 $r_{pbi} = \frac{17.86-16.4}{4.84}\sqrt{\frac{0.8}{0.2}}$

r = $\frac{1.46}{4.84}\sqrt{4}$

r = 0.301 x 2 = 0.602

Item 8 $r_{pbi} = \frac{18.04-16.4}{4.84}\sqrt{\frac{0.7}{0.3}}$

r = $\frac{1.64}{4.84}\sqrt{2.33}$

r = 0.338 x 1.52 = 0.513

Item 9 $r_{pbi} = \frac{18.6-16.4}{4.84}\sqrt{\frac{0.7}{0.3}}$

r = $\frac{2.2}{4.84}\sqrt{2.33}$

r = 0.454 x 1.52 = 0.690

Item 10 $r_{pbi} = \frac{17.91-16.4}{4.84}\sqrt{\frac{0.8}{0.2}}$

r = $\frac{1.51}{4.84}\sqrt{4}$

r = 0.311 x 2 = 0.622

Item 11 $r_{pbi} = \frac{18.5-16.4}{4.84}\sqrt{\frac{0.5}{0.5}}$

r = $\frac{2.1}{4.84}\sqrt{1}$

r = 0.433 x 1 = 0.433

Item 12 $r_{pbi} = \frac{17.5-16.4}{4.84}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.1}{4.84}\sqrt{4}$

r = 0.227 x 2 = 0.454

Item 13 $r_{pbi} = \frac{17.52-16.4}{4.84}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.12}{4.84}\sqrt{4}$

r = 0.231 x 2 = 0.462

Item 14 $r_{pbi} = \frac{17.71-16.4}{4.84}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.31}{4.84}\sqrt{2.33}$

r = 0.270 x 1.52 = 0.410

Item 15 $r_{pbi} = \frac{18.91-16.4}{4.84}\sqrt{\frac{0.4}{0.6}}$

$r = \frac{2.51}{4.84}\sqrt{0.66}$

r = 0.518 x 0.816 = 0.422

Item 16 $r_{pbi} = \frac{18.33-16.4}{4.84}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.93}{4.84}\sqrt{2.33}$

r = 0.398 x 1.52 = 0.604

Item 17 $r_{pbi} = \frac{17.73-16.4}{4.84}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.33}{4.84}\sqrt{4}$

r = 0.274 x 2 = 0.548

Item 18 $r_{pbi} = \frac{17.46-16.4}{4.84}\sqrt{\frac{0.9}{0.1}}$

$r = \frac{1.06}{4.84}\sqrt{9}$

r = 0.219 x 3 = 0.657

Item 19 $r_{pbi} = \frac{19.09-16.4}{4.84}\sqrt{\frac{0.4}{0.6}}$

$r = \frac{2.69}{4.84}\sqrt{0.66}$

r = 0.555 x 0.816 = 0.452

Item 20 $r_{pbi} = \frac{17.54-16.4}{4.84}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.14}{4.84}\sqrt{2.33}$

r = 0.235 x 1.52 = 0.357

Item 21 $r_{pbi} = \frac{17.63-16.4}{4.84}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.23}{4.84}\sqrt{2.33}$

r = 0.254 x 1.52= 0.386

Item 22 $r_{pbi} = \frac{16.15-16.4}{4.84}\sqrt{\frac{0.4}{0.6}}$

$r = \frac{0.25}{4.84}\sqrt{0.66}$

r = 0.051x 0.812 = 0.004

Item 23 $r_{pbi} = \frac{17.34-16.4}{4.84}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{0.94}{4.84}\sqrt{4}$

r = 0.194 x 2 = 0.388

Item 24 $r_{pbi} = \frac{17.62-16.4}{4.84}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.22}{4.84}\sqrt{4}$

r = 0.252 x 2 = 0.504

Item 25 $r_{pbi} = \frac{17.59-16.4}{4.84}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.19}{4.84}\sqrt{2.33}$

r = 0.245 x 1.52 = 0.372

Appendix 11

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

A. Calculation of Pre-Test

1. Means score from score total (M_t)

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

$$M_t = \frac{490}{30} = 16.33$$

2. Standard Deviation (SD_t)

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

$$SD_t = \sqrt{\frac{8690}{30} - \left(\frac{490}{30}\right)^2}$$

$$SD_t = \sqrt{289.6 - 16.33^2}$$

$$SD_t = \sqrt{289.6 - 266.6} = \sqrt{23} = 4.79$$

3. Means Score (M_p)

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

$$M_{p1} = \frac{20+20+20+18+15+12+20+20+18+20+16+20+17+9+21+19+19+22+15+18}{19}$$

$$M_{p1} = \frac{359}{19} = 18.89$$

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

$$M_{p2} = \frac{20+20+17+18+16+17+20+22}{8}$$

$$M_{p2} = \frac{150}{8} = 18.75$$

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

$$M_{p3} = \frac{20+20+20+18+12+20+4+17+20+18+20+17+20+16+20+20+21+12+19+19+16+22+18}{23}$$

$$M_{p3} = \frac{409}{23} = 17.78$$

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

$$M_{p4} = \frac{20+20+20+18+15+12+20+4+17+20+20+17+20+20+20+21+19+19+22+15+18}{21}$$

$$M_{p4} = \frac{377}{21} = 17.95$$

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

$$M_{p5} = \frac{20+20+20+18+15+12+17+20+20+6+17+20+16+20+14+17+20+21+12+19+19+22+15+18}{24}$$

$$M_{p5} = \frac{418}{24} = 17.41$$

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

$$M_{p6} = \frac{20+20+20+18+15+17+20+20+5+17+20+20+5+17+20+16+20+14+17+21+19+16+22+15+18}{21}$$

$$M_{p6} = \frac{370}{21} = 17.61$$

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

$$M_{p7} = \frac{20+12+20+17+20+20+20+20+21+19+22+15}{12}$$

$$M_{p7} = \frac{226}{12} = 18.83$$

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

$$M_{p8} = \frac{20+20+20+18+15+12+20+17+20+18+20+17+20+16+21+19+19+16+22+15+18}{21}$$

$$M_{p8} = \frac{383}{21} = 18.23$$

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

$$M_{p9} = \frac{20+20+20+15+12+20+20+18+20+17+20+16+20+14+17+9+20+21+19+19+16+15+18+}{23}$$

$$M_{p9} = \frac{406}{23} = 17.65$$

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

$$M_{p10} = \frac{20+20+18+15+20+17+20+18+20+5+17+20+16+20+14+17+9+20+21+19+19+16+22+18}{24}$$

$$M_{p10} = \frac{421}{24} = 17.54$$

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

$$M_{p11} = \frac{20+20+20+18+15+20+20+18+20+17+20+16+14+17+20+21+19+19+22+15+18}{21}$$

$$M_{p11} = \frac{389}{21} = 18.52$$

Item 12 $M_{p12} = \frac{\text{the total of students score that answer true item}}{n12}$

$$M_{p12} = \frac{20+20+20+18+12+20+17+20+18+20+17+20+16+14+17+20+21+12+19+16+22+18}{22}$$

$$M_{p12} = \frac{397}{22} = 18.04$$

Item 13 $M_{p13} = \frac{\text{the total of students score that answer true item}}{n13}$

$$M_{p13} = \frac{20+20+20+18+15+12+20+17+20+18+20+17+20+16+20+14+17+20+21+12+19+16+18}{23}$$

$$M_{p13} = \frac{410}{23} = 17.82$$

Item 14 $M_{p14} = \frac{\text{the total of students score that answer true item}}{n14}$

$$M_{p14} = \frac{12+20+4+17+6+5+16+17+20+22}{10}$$

$$M_{p14} = \frac{139}{10} = 13.90$$

Item 15 $M_{p15} = \frac{\text{the total of students score that answer true item}}{n15}$

$$M_{p15} = \frac{20+20+20+18+15+20+20+18+20+17+20+16+20+17+9+20+21+12+19+19+22+18}{22}$$

$$M_{p15} = \frac{401}{22} = 18.22$$

Item 16 $M_{p16} = \frac{\text{the total of students score that answer true item}}{n23}$

$$M_{p16} = \frac{20+20+20+18+15+12+18+17+20+16+20+14+9+16+22+15+18}{17}$$

$$M_{p16} = \frac{290}{17} = 17.05$$

Item 17 $M_{p17} = \frac{\text{the total of students score that answer true item}}{n17}$

$$M_{p17} = \frac{20+20+20+18+15+20+17+20+18+20+6+20+20+14+9+20+21+12+19+19+16}{23}$$

$$M_{p17} = \frac{397}{23} = 17.26$$

Item 18 $M_{p18} = \frac{\text{the total of students score that answer true item}}{n18}$

$$M_{p18} = \frac{20+20+18+17+20+18+20+20+14+20+21+12+19+22+15+18}{16}$$

$$M_{p18} = \frac{282}{16} = 17.62$$

Item 19 $M_{p19} = \frac{\text{the total of students score that answer true item}}{n19}$

$$M_{p19} = \frac{20+20+20+20+17+20+21+19+16+22+15}{11}$$

$$M_{p19} = \frac{210}{11} = 19.09$$

Item 20 $M_{p20} = \frac{\text{the total of students score that answer true item}}{n20}$

$$M_{p20} = \frac{20+12+6+17+20+20+14+17+20+19+19+16+22}{13}$$

$$M_{p20} = \frac{202}{13} = 15.53$$

Item 21 $M_{p21} = \frac{\text{the total of students score that answer true item}}{n21}$

$$M_{p21} = \frac{20+20+20+18+15+20+4+17+20+18+20+17+20+16+20+14+17+9+20+21+12+19+19+16+22+18}{26}$$

$$M_{p21} = \frac{452}{26} = 17.38$$

Item 22 $M_{p22} = \frac{\text{the total of students score that answer true item}}{n22}$

$$M_{p22} = \frac{20+20+18+12+20+17+20+18+20+17+20+20+14+17+21+12+19+19+16+22+15+18}{22}$$

$$M_{p22} = \frac{395}{22} = 17.95$$

Item 23 $M_{p23} = \frac{\text{the total of students score that answer true item}}{n16}$

$$Mp_{23} = \frac{20+20+20+18+15+20+20+18+20+6+5+17+20+20+20+21+12+19+19+16+22+18}{22}$$

$$M_{p23} = \frac{386}{22} = 17.54$$

Item 24 $M_{p24} = \frac{\text{the total of students score that answer true item}}{n24}$

$$M_{p24} = \frac{20+20+20+17+20+18+20+6+20+20+20+14+17+9+20+21+12+19+19+16+22+15}{21}$$

$$M_{p24} = \frac{385}{21} = 18.33$$

Item 25 $M_{p25} = \frac{\text{the total of students score that answer true item}}{n25}$

$$M_{p25} = \frac{20+20+20+18+15+20+17+20+18+20+5+17+20+16+20+17+9+20+21+12+19+19+16+22+15}{25}$$

$$M_{p25} = \frac{436}{25} = 17.44$$

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

Item 1= $r_{pbi} = \frac{M_p - M_t}{SD_t}\sqrt{\frac{p}{q}}$

$$r_{pbi} = \frac{18.89-16.33}{4.79}\sqrt{\frac{0.6}{0.4}}$$

$$r = \frac{2.56}{4.79}\sqrt{1.5}$$

r = 0.534 x 1.22 = 0.651

Item 2 $r_{pbi} = \frac{18.75-16.33}{4.79}\sqrt{\frac{0.3}{0.7}}$

$$r = \frac{2.42}{4.79}\sqrt{0.428}$$

r = 0.505 x 0.654 = 0.330

Item 3 $r_{pbi} = \frac{17.78-16.33}{4.79}\sqrt{\frac{0.8}{0.2}}$

$$r = \frac{1.45}{4.79}\sqrt{4}$$

r = 0.302 x 2 = 0.604

Item 4 $r_{pbi} = \frac{17.95-16.3}{4.79}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.62}{4.79}\sqrt{2.33}$

$r = 0.338 \times 1.52 = 0.513$

Item 5 $r_{pbi} = \frac{17.41-16.33}{4.79}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.08}{4.79}\sqrt{4}$

$r = 0.225 \times 2 = 0.450$

Item 6 $r_{pbi} = \frac{17.61-16.33}{4.79}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.28}{4.79}\sqrt{2.33}$

$r = 0.267 \times 1.52 = 0.405$

Item 7 $r_{pbi} = \frac{18.83-16.33}{4.79}\sqrt{\frac{0.4}{0.6}}$

$r = \frac{2.50}{4.79}\sqrt{0.66}$

$r = 0.521 \times 0.816 = 0.425$

Item 8 $r_{pbi} = \frac{18.23-16.33}{4.79}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.90}{4.79}\sqrt{2.33}$

$r = 0.396 \times 1.52 = 0.601$

Item 9 $r_{pbi} = \frac{17.65-16.33}{4.79}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.32}{4.79}\sqrt{4}$

$r = 0.275 \times 2 = 0.550$

Item 10 $r_{pbi} = \frac{17.54-16.33}{4.79}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.21}{4.79}\sqrt{4}$

$r = 0.252 \times 2 = 0.504$

Item 11 $r_{pbi} = \frac{18.52-16.33}{4.79}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{2.19}{4.79}\sqrt{2.33}$

$r = 0.457 \times 1.52 = 0.694$

Item 12 $r_{pbi} = \frac{18.04-16.33}{4.79}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.71}{4.79}\sqrt{2.33}$

r = 0.356 x 1.52 = 0.541

Item 13 $r_{pbi} = \frac{17.82-16.33}{4.79}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.49}{4.79}\sqrt{4}$

r = 0.311 x 2 = 0.622

Item 14 $r_{pbi} = \frac{13.9-16.33}{4.79}\sqrt{\frac{0.3}{0.7}}$

$r = \frac{-2.43}{4.79}\sqrt{0.428}$

r = -0.507 x 0.654 = - 0.331

Item 15 $r_{pbi} = \frac{18.22-16.33}{4.79}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.89}{4.79}\sqrt{2.33}$

r = 0.394 x 1.52 = 0.598

Item 16 $r_{pbi} = \frac{17.05-16.33}{4.79}\sqrt{\frac{0.6}{0.4}}$

$r = \frac{0.72}{4.79}\sqrt{1.5}$

r = 0.150 x 1.22 = 0.183

Item 17 $r_{pbi} = \frac{17.26-16.33}{4.79}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{0.93}{4.79}\sqrt{4}$

r = 0.194 x 2 = 0.388

Item 18 $r_{pbi} = \frac{17.62-16.33}{4.79}\sqrt{\frac{0.5}{0.5}}$

$r = \frac{1.29}{4.79}\sqrt{1}$

r = 0.269 x 1 = 0.269

Item 19 $r_{pbi} = \frac{19.09-16.33}{4.79}\sqrt{\frac{0.4}{0.6}}$

$r = \frac{2.76}{4.79}\sqrt{0.66}$

r = 0.576 x 0.816 = 0.470

Item 20 $r_{pbi} = \frac{15.53-16.33}{4.79}\sqrt{\frac{0.4}{0.6}}$

$r = \frac{0.8}{4.79}\sqrt{0.66}$

r = 0.167 x 0.816= 0.136

Item 21 $r_{pbi} = \frac{17.38-16.33}{4.79}\sqrt{\frac{0.9}{0.1}}$

$r = \frac{1.05}{4.79}\sqrt{9}$

r = 0.219 x 3= 0.657

Item 22 $r_{pbi} = \frac{17.95-16.33}{4.79}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.62}{4.79}\sqrt{2.33}$

r = 0.338 x 1.52 = 0.513

Item 23 $r_{pbi} = \frac{17.54-16.33}{4.79}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{1.21}{4.79}\sqrt{2.33}$

r = 0.252 x 1.52 = 0.383

Item 24 $r_{pbi} = \frac{18.33-16.33}{4.79}\sqrt{\frac{0.7}{0.3}}$

$r = \frac{2}{4.79}\sqrt{2.33}$

r = 0.417 x 1.52 = 0.633

Item 25 $r_{pbi} = \frac{17.44-16.33}{4.79}\sqrt{\frac{0.8}{0.2}}$

$r = \frac{1.11}{4.79}\sqrt{4}$

r = 0.231 x 2 = 0.462

Appendix 13

Reliability Pre Test

To get reliability of the test, the writer uses formula KR-20:

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

N = 30

$\sum Xt$ = 492

$\sum Xt^2$ = 8772

$\sum pq$ = 4.8786

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

$= 8772 - \left(\frac{492}{30}\right)^2 = 8772 - \frac{242064}{30} = 8772 - 8068.8 = 703.2$

$S_t^2 = \frac{\sum Xt2}{N} = \frac{703.2}{30}$

S_t^2 = 23.44

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

$R_{11} = \left(\frac{30}{30-1}\right)\left(\frac{23.44-4.8786}{23.44}\right) = \left(\frac{30}{29}\right)\left(\frac{18.5614}{23.44}\right)$

= (1.034) (0. 791)

R_{11} = 0.822

(r_{11} > 0.70 = reliable)

Test is reliable if $r_{count} > r_{tabel}$. Based on calculation above, the test have very high reliable.

Appendix 15

Reliability Post Test

To get reliability of the test, the writer uses formula KR-20:

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

N = 30

$\sum Xt$ = 490

$\sum Xt^2$ = 8690

$\sum pq$ = 4.8996

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

$= 8690 - \left(\frac{490}{30}\right)^2 = 8690 - \frac{240100}{30} = 8690 - 8003.3 = 686.7$

$S_t^2 = \frac{\sum Xt2}{N} = \frac{686.7}{30}$

S_t^2 = 22.89

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

$R_{11} = \left(\frac{30}{30-1}\right)\left(\frac{22.89 - 4.8996}{22.89}\right) = \left(\frac{30}{29}\right)\left(\frac{107.9904}{22.89}\right)$

$= (1.034)\ (0.\ 785)$

R_{11} = 0.822

(r_{11} > 0.70 = reliable)

Test is reliable if $r_{count} > r_{tabel}$. Based on calculation above, the test have very high reliable.

APPENDIX 24

Chi-Square Table

dk	Significant level					
	50%	**30%**	**20%**	**10%**	**5%**	**1%**
1	0,455	1,074	1,642	2,706	3,841	6,635
2	1,386	2,408	3,219	4,605	**5,991**	9,210
3	2,366	3,665	4,642	6,251	7,815	11,341
4	3,357	4,878	5,989	7,779	9,488	13,277
5	4,351	6,064	7,289	9,236	11,070	15,086
6	5,348	7,231	8,558	10,645	12,592	16,812
7	6,346	8,383	9,803	12,017	14,067	18,475
8	7,344	9,524	11,030	13,362	15,507	20,090
9	8,343	10,656	12,242	14,684	16,919	21,666
10	9,342	11,781	13,442	15,987	18,307	23,209
11	10,341	12,899	14,631	17,275	19,675	24,725
12	11,340	14,011	15,812	18,549	21,026	26,217
13	12,340	15,119	16,985	19,812	22,362	27,688
14	13,339	16,222	18,151	21,064	23,685	29,141
15	14,339	17,222	19,311	22,307	24,996	30,578
16	15,338	18,418	20,465	23,542	26,296	32,000
17	16,338	19,511	21,615	24,769	27,587	33,409
18	17,338	20,601	22,760	25,989	28,869	34,805
19	18,338	21,689	23,900	27,204	30,144	36,191
20	19,337	22,775	25,038	28,412	31,410	37,566
21	20,337	23,858	26,171	29,615	32,671	38,932
22	21,337	24,939	27,301	30,813	33,924	40,289
23	22,337	26.018	28,429	32,007	35,172	41,638
24	23,337	27,096	29,553	33,196	35,415	42,980
25	24,337	28,172	30,675	34,382	37,652	44,314
26	25,336	29,246	31,795	35,563	38,885	45,642
27	26,336	30,319	32,912	36,741	40,113	46,963
28	27,336	31,391	34,027	37,916	41,337	48,278
29	28,336	32,461	35,139	39,087	42,557	49,588
30	29,336	33,530	36,250	40,256	43,773	50,892

APPENDIX 25

Z-Table

Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.9	0.00005	0.00005	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00003	0.00003
-3.8	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00005	0.00005	0.00005
-3.7	0.00011	0.00010	0.00010	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008
-3.6	0.00016	0.00015	0.00015	0.00014	0.00014	0.00013	0.00013	0.00012	0.00012	0.00011
-3.5	0.00023	0.00022	0.00022	0.00021	0.00020	0.00019	0.00019	0.00018	0.00017	0.00017
-3.4	0.00034	0.00032	0.00031	0.00030	0.00029	0.00028	0.00027	0.00026	0.00025	0.00024
-3.3	0.00048	0.00047	0.00045	0.00043	0.00042	0.00040	0.00039	0.00038	0.00036	0.00035
-3.2	0.00069	0.00066	0.00064	0.00062	0.00060	0.00058	0.00056	0.00054	0.00052	0.00050
-3.1	0.00097	0.00094	0.00090	0.00087	0.00084	0.00082	0.00079	0.00076	0.00074	0.00071
-3.0	0.00135	0.00131	0.00126	0.00122	0.00118	0.00114	0.00111	0.00107	0.00104	0.00100
-2.9	0.00187	0.00181	0.00175	0.00169	0.00164	0.00159	0.00154	0.00149	0.00144	0.00139
-2.8	0.00256	0.00248	0.00240	0.00233	0.00226	0.00219	0.00212	0.00205	0.00199	0.00193
-2.7	0.00347	0.00336	0.00326	0.00317	0.00307	0.00298	0.00289	0.00280	0.00272	0.00264
-2.6	0.00466	0.00453	0.00440	0.00427	0.00415	0.00402	0.00391	0.00379	0.03680	0.00357
-2.5	0.00621	0.00604	0.00587	0.00570	0.00554	0.00539	0.00523	0.00508	0.00494	0.00480
-2.4	0.00820	0.00798	0.00776	0.00755	0.00734	0.00714	0.00695	0.00676	0.00657	0.00639
-2.3	0.01072	0.01044	0.01017	0.00990	0.00964	0.00939	0.00914	0.00889	0.00866	0.00842
-2.2	0.01390	0.01355	0.01321	0.01287	0.01255	0.01222	0.01191	0.01160	0.01130	0.01101
-2.1	0.01786	0.01743	0.01700	0.01659	0.01618	0.01578	0.01539	0.01500	0.01463	0.01426
-2.0	0.02275	0.02222	0.02169	0.02118	0.02068	0.02018	0.01970	0.01923	0.01876	0.01831
-1.9	0.02872	0.02807	0.02743	0.02680	0.02619	0.02559	0.02500	0.02442	0.02385	0.02330
-1.8	0.03593	0.03515	0.03438	0.03362	0.03288	0.03216	0.03144	0.03074	0.03005	0.02938
-1.7	0.04457	0.04363	0.04272	0.04182	0.04093	0.04006	0.03920	0.03836	0.03754	0.03673
-1.6	0.05480	0.05370	0.05262	0.05155	0.05050	0.04947	0.04846	0.04746	0.04648	0.04551

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

Z-Table

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974

2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990
3,1	0,4990	0,4991	0,4991	0.4991	0,4992	0,4992	0,4992	0,4992	0,4993	0,4993
3,2	0,4993	0,4993	0,4994	0,4994	0,4994	0,4994	0,4994	0,4995	0,4995	0,4995
3,3	0,4995	0,4995	0,4995	0,4996	0,4996	0,4996	0,4996	0,4996	0,4997	0,4997
3,4	0,4997	0,4997	0,4997	0,4997	0,4997	0,4997	0,4997	0,4997	0,4997	0,4998
3,5	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998	0,4998
3,6	0,4998	0,4998	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999
3,7	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999
3,8	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999	0,4999
3,9	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000	0,5000

APPENDIX 26

Percentage Points of the t Distribution

Two Tail Test						
	0,50	**0,20**	**0,10**	**0,05**	**0,02**	**0,01**
One Tail Test						
dk	**0,25**	**0,10**	**0, 005**	**0,025**	**0,01**	**0,05**
1	1,000	3,078	6,314	12,706	31,821	63,657
2	0,816	1,886	2,920	4,303	6,965	9,925
3	0,765	1,638	2,353	3,182	4,541	5,841
4	0,741	1,533	2,132	2,776	3,747	4,604
5	0,721	1,486	2,015	2,571	3,365	4,032
6	0,718	1,440	1,943	2,447	3,143	3,707
7	0,711	1,415	1,895	2,365	2,998	3,499
8	0,706	1,397	1,860	2,306	2,896	3,355
9	0,703	1,383	1,833	2,262	2,821	3,250
10	0,700	1,372	1,812	2,228	2,764	3,165
11	0,697	1,363	1,796	2,201	2,718	3,106
12	0,695	1,356	1,782	2,178	2,681	3.055
13	0,692	1,350	1,771	2,160	2,650	3.012
14	0,691	1,345	1,761	2,145	2,624	2,977
15	0,690	1,341	1,753	2,132	2,623	2,947
16	0,689	1,337	1,746	2,120	2,583	2,921
17	0,688	1,333	1,743	2,110	2,567	2,898
18	0,688	1,330	1,740	2,101	2,552	2,878
19	0,687	1,328	1,729	2,093	2,539	2,861
20	0,687	1,325	1,725	2,086	2,528	2,845
21	0,686	1,323	1,721	2,080	2,518	2,831
22	0,686	1,321	1,717	2,074	2,508	2,819
23	0,685	1,319	1,714	2,069	2,500	2,807
24	0,685	1,318	1,711	2,064	2,492	2,797
25	0,684	1,316	1,708	2,060	2,485	2,787
26	0,684	1,315	1,706	2,056	2,479	2,779
27	0,684	1,314	1,703	**2,052**	2,473	2,771
28	0,683	1,313	1,701	2,048	2,467	2,763
29	0,683	1,311	1,699	2,045	2,462	2,756
30	0,683	1,310	1,697	**2,042**	2,457	2,750
40	0,681	1,303	1,684	2,021	2,423	2,704
60	0,679	1,296	1,671	**2,000**	2,390	2,660
120	0,677	1,289	1,658	1,980	2,358	2,617
∞	0,674	1,282	1,645	1,960	2,326	2,576

Appendix 20

THE SCORE OF POST TEST

The scores in the following table are the result of students' vocabulary mastery in post-test:

1. The Score of Experimental Class

The Initial Name of Students (n)	**Xi**	**Xi^2**
1. RMP	65	4225
2. SAS	65	4225
3. MS	70	4900
4. HB	70	4900
5. AMP	70	4900
6. ASN	75	5625
7. FAP	75	5625
8. MFB	75	5625
9. HSA	75	5625
10. SD	75	5625
11. ARL	80	6400
12. DM	80	6400
13. ESS	80	6400
14. ASU	80	6400
15. SWH	80	6400
16. RA	80	6400
17. ATR	80	6400
18. PAS	80	6400
19. RAP	80	6400
20. AS	85	7225
21. SH	85	7225
22. RFH	85	7225
23. PRH	85	7225
24. USD	90	8100
25. CMA	90	8100
26. NHB	90	8100
27. NAS	95	9025
28. DMH	95	9025
29. HAR	95	9025
30. DHS	95	9025

31. NAH	95	9025
	2520	207200

2. The Score of Control Class

The Initial Name of Students (n)	Xi	Xi^2
1. PA	45	2025
2. APN	45	2025
3. MU	45	2025
4. MA	50	2500
5. MRF	50	2500
6. MRD	50	2500
7. MAH	55	3025
8. MRA	55	3025
9. EKL	55	3025
10. LAS	55	3025
11. DLH	60	3600
12. AR	60	3600
13. FH	60	3600
14. NAS	60	3600
15. RA	60	3600
16. INS	60	3600
17. AFH	60	3600
18. BSP	60	3600
19. KIH	60	3600
20. IMG	60	3600
21. RFS	65	4225
22. AF	65	4225
23. SAS	65	4225
24. NFT	65	4225
25. RWS	70	4900
26. NN	70	4900
27. HP	75	5625
28. RA	75	5625
Total	1655	99625

Appendix 19

T_{test} OF THE BOTH AVERAGES IN PRE – TEST

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

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

So:

$$S = \sqrt{\frac{(31-1)71.29+(28-2)90.04}{31+28-2}}$$

$$= \sqrt{\frac{30\ (71.29)+26\ (90.04)}{57}}$$

$$= \sqrt{\frac{2138.7+2341.04}{57}}$$

$$= \sqrt{\frac{4479.74}{57}}$$

$$= \sqrt{78.59}$$

$$= 8.86$$

So:

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

$$t = \frac{59.9 - 55.75}{8.86\sqrt{\frac{1}{31}+\frac{1}{28}}}$$

$$= \frac{4.15}{8.86\sqrt{0,032+0.035}}$$

$$= \frac{4.15}{8.86(0.25)}$$

$$= \frac{4.15}{2.21}$$

$$= 1.87$$

Based on researcher calculation result of the homogeneity test of the both averages, researcher found that t_{count}= 1.87 with opportunity (1-α) = 1 – 5% = 95% and dk = n_1 + n_2 -2 = 31+ 28 – 2 = 57 , reseracher found that t_{table} = 2.000, cause t_{count}> t_{table}(1.87 < 2.000). So, H_a was accepted, it means no difference the average between the first class as experimental class and the second class as control class in this research.

Appendix 23

T_{test} OF THE BOTH AVERAGES IN POST – TEST

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

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

So:

$$S = \sqrt{\frac{(31-1)78.27+(28-2)66.76}{31+28-2}}$$

$$= \sqrt{\frac{30\ (78.27)+26\ (66.76)}{57}}$$

$$= \sqrt{\frac{2348.1+1735.76}{57}}$$

$$= \sqrt{\frac{4083.86}{57}}$$

$$= \sqrt{71.64}$$

$$= 8.46$$

So:

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

$$t = \frac{80.75 - 62.85}{8.46\sqrt{\frac{1}{31}+\frac{1}{28}}}$$

$$= \frac{17.9}{8.46\sqrt{0,032+0.035}}$$

$$= \frac{17.9}{8.46(0.25)}$$

$$= \frac{17.9}{2.11}$$

$$= 8.48$$

Based on researcher calculation result of the homogeneity test of the both averages, researcher found that t_{count}= 8.48 with opportunity (1-α) = 1 – 5% = 95% and dk = n_1 + n_2 -2 = 31+ 28 – 2 = 57 , reseracher found that t_{table} = 2.000, cause t_{count}> t_{table}(8.48> 2.000). So, H_a was accepted, it means there was the difference average between the first class as experimental class and the second class as control class in this research.

Appendix 22

HOMOGENEITY TEST (POST TEST)

1. EXPERIMENT CLASS

The Initial Name of Students (n)	**Xi**	**Xi^2**
1. RMP	65	4225
2. SAS	65	4225
3. MS	70	4900
4. HB	70	4900
5. AMP	70	4900
6. ASN	75	5625
7. FAP	75	5625
8. MFB	75	5625
9. HSA	75	5625
10. SD	75	5625
11. ARL	80	6400
12. DM	80	6400
13. ESS	80	6400
14. ASU	80	6400
15. SWH	80	6400
16. RA	80	6400
17. ATR	80	6400
18. PAS	80	6400
19. RAP	80	6400
20. AS	85	7225
21. SH	85	7225
22. RFH	85	7225
23. PRH	85	7225
24. USD	90	8100
25. CMA	90	8100
26. NHB	90	8100
27. NAS	95	9025
28. DMH	95	9025
29. HAR	95	9025
30. DHS	95	9025
31. NAH	95	9025
	2520	207200

n = 31

$\sum xi$ = 2520

$\sum_{xi} 2$ = 207200

So:

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

$$= \frac{31(207200) - (2520)^2}{31(31-1)}$$

$$= \frac{6423200 - 6350400}{31(30)}$$

$$= \frac{72800}{930}$$

= 78.27

2. CONTROL CLASS

The Initial Name of Students (n)	Xi	Xi^2
1. PA	45	2025
2. APN	45	2025
3. MU	45	2025
4. MA	50	2500
5. MRF	50	2500
6. MRD	50	2500
7. MAH	55	3025
8. MRA	55	3025
9. EKL	55	3025
10. LAS	55	3025
11. DLH	60	3600
12. AR	60	3600
13. FH	60	3600
14. NAS	60	3600
15. RA	60	3600
16. INS	60	3600

17. AFH	60	3600
18. BSP	60	3600
19. KIH	60	3600
20. IMG	60	3600
21. RFS	65	4225
22. AF	65	4225
23. SAS	65	4225
24. NFT	65	4225
25. RWS	70	4900
26. NN	70	4900
27. HP	75	5625
28. RA	75	5625
Total	1655	99625

n = 28

$\sum xi$= 1655

$\sum_{xi} 2$ = 99625

So:

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

$$= \frac{28(99625) - (1655)^2}{28(28-1)}$$

$$= \frac{2789500 - 2739025}{28(27)}$$

$$= \frac{50475}{756}$$

$$= 66.76$$

The Formula was used to test hypothesis was:

1. VII-1 and VII-2 :

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

So:

$$F = \frac{78.27}{66.76}$$

$$= 1.17$$

After doing the calculation, researcher found that $F_{count} = 1.17$ with α 5 % and dk = 31 & 28 from the distribution list F, researcher found that $F_{table} = 2.042$ & 2.052, cause $F_{count} < F_{table}$ (1.17< 2.042 & 2.052). So, there is no difference the variant between the VII-1 class and VII-2 class. It means that the variant is homogenous**.**

Appendix 21

RESULT OF NORMALITY TEST IN POST-TEST

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

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

   65 65 70 70 70 75 75 75 75 75

   80 80 80 80 80 80 80 80 80 85

   85 85 85 90 90 90 95 95 95 95

   95

2. High = 95

   Low = 65

   Range = High – Low

   = 95 – 65

   = 30

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

   = 1 + 3,3 log (31)

   = 1 + 3,3 (1,49)

   = 1 + 4.91

   = 5.91

   = 6

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

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
65 – 69	2	67	3	6	9	18
70 – 74	3	72	2	6	4	12
75 – 79	5	77	1	5	1	5
80 – 84	9	82	0	0	0	0
85 – 89	4	87	-1	-4	1	4
90 – 94	3	92	-2	-6	4	12

95 – 99	5	97	-3	-15	9	45
i = 5	31	-	-	-8	-	96

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

= 82 + 5 $(\frac{-8}{31})$

= 82 + 5 (-0.25)

= 82 + (-1.25)

= 80.75

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

$$= \sqrt[5]{\frac{96}{31} - \left(\frac{-8}{31}\right)^2}$$

$$= \sqrt[5]{3.09 - (-0.25)^2}$$

$$= \sqrt[5]{3.09 - 0.062}$$

$$= \sqrt[5]{3.028}$$

= 5 (1.740)

= 8.7

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0-f_h)}{f_h}$
	99.5	2.15	0.4842				
95 – 99				0.04	1.24	5	3.03
	94.5	1.58	0.4429				
90 – 94				0.10	3.1	3	-0.03
	89.5	1.00	0.3413				
85 – 89				0.17	5.27	4	-0.24
	84.5	0.43	0.1664				
80 – 84				-0.27	-8.37	9	0.07
	79.5	-0.14	0.44433				
75– 79				0.20	6.2	5	-0.19
	74.5	-0.71	0.23885				
70- 74				0.14	4.34	3	-0.30
	69.5	-1.29	0.09853				
65 - 69				0.06	1.86	2	0.07
	64.5	-1.86	0.03144				
						X^2	2.41

Based on table above, researcher found that x^2_{count} = 2.41 while x^2_{table}=5.991 cause $x^2_{cause} < x^2_{table}$ (2.41 <5.991) with degree of freedom dk = 5 – 3 = 2 and significat level α = 5%. So distribution of experiment class (Post-test) was normal.

6. Median

No	Interval of Classes	F	Fk
1	65 - 69	2	2
2	70 - 74	3	5
3	75 - 79	5	10
4	**80 - 84**	**9**	19
5	85 - 89	4	23
6	90 - 94	3	26
7	95 - 99	5	31

Position of Me in the interval of classes is number 4, that:

Bb = 79.5

F = 10

fm = 9

i = 5

n = 31

1/2n =15.5

So :

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

$$= 79{,}5 + 5\left(\frac{15.5-10}{9}\right)$$

$$= 79.5 + 5\ (0.61)$$

$$= 79.5 + 3.05$$

= 82.55

7. Modus

No	Interval of Classes	F	Fk
1	65 - 69	2	2
2	70 - 74	3	5
3	75 - 79	5	10
4	**80 - 84**	**9**	19
5	85 - 89	4	23
6	90 - 94	3	26
7	95 - 99	5	31

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

L = 79.5
d_1 = 4
d_2 = 5
i = 5

$M_o = 79.5 + \frac{4}{4+5}\ 5$
= 79.5 + 0.44 (5)
= 79.5 + 2.2
= 81.7

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

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

   45 45 45 50 50 50 55 55 55 55

   60 60 60 60 60 60 60 60 60 60

   65 65 65 65 70 70 75 75

2. High = 75

   Low = 45

   Range = High – Low

   = 75 – 45

   = 30

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

   = 1 + 3,3 log (28)

   = 1 + 3,3 (1,44)

   = 1 + 4.75

   = 5.75

   = 6

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

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
45 – 49	3	47	3	9	9	27
50 – 54	3	52	2	6	4	12
55 – 59	4	57	1	4	1	4
60 – 64	10	62	0	0	0	0
65 – 69	4	67	-1	-4	1	4
70 – 74	2	72	-2	-4	4	8
75 – 79	2	77	-3	-6	9	18
i = 5	28	-	-	5	-	73

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

$= 62 + 5(\frac{5}{28})$

$= 62 + 5\ (0.17)$

$= 62 + (0.85)$

$= 62.85$

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

$= \sqrt[5]{\frac{73}{28} - \left(\frac{5}{28}\right)^2}$

$= \sqrt[5]{2.60 - (0.17)^2}$

$= \sqrt[5]{2.60 - 0.02}$

$= \sqrt[5]{2.58}$

$= 5\ (1.60)$

$= 8$

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0-f_h)}{f_h}$
	79.5	2.29	0.4890				
75 – 79				0.0375	1.05	2	0.90
	74.5	1.66	0.4515				
70 – 74				0.1007	2.81	2	-0.29
	69.5	1.04	0.3508				
65 – 69				0.1917	5.36	4	-0.25
	64.5	0.41	0.1591				
60 – 64				-0.2616	-7.32	10	-2.36
	59.5	-0.20	0.42074				
55 – 59				0.21747	6.08	4	-0.34
	54.5	-0.83	0.20327				
50 - 54				0.12974	3.63	3	-0.17
	49.5	-1.45	0.07353				

45 - 49	44.5	-2.08	0.01876	0.05477	1.53	3	0.96
						X^2	-1.55

Based on table above, researcher found that x^2_{count} = -1.55 while x^2_{table}= 5.991 cause $x^2_{cause} < x^2_{table}$ (-1.55 <5.991) with degree of freedom dk = 5 – 3 = 2 and significat level α = 5%. So distribution of control class (post-test) was normal.

6. Median

No	Interval of Classes	F	Fk
1	45 – 49	3	3
2	50 - 54	3	6
3	55 - 59	2	8
4	**60 - 64**	**10**	18
5	65 - 69	4	22
6	70 - 74	4	26
7	75 - 79	2	28

Position of Me in the interval of classes is number 4, that:

Bb = 59.5

F = 8

fm = 10

i = 5

n = 28

1/2n =14

So :

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

= 59,5 + 5 $\left(\frac{14-8}{10}\right)$

= 59.5 + 5 (0.6)

= 59.5 + 3

= 62.5

7. Modus

No	Interval of Classes	F	Fk
1	45 – 49	3	3
2	50 - 54	3	6
3	55 - 59	2	8
4	**60 - 64**	**10**	18
5	65 - 69	4	22
6	70 - 74	4	26
7	75 - 79	2	28

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

L = 59.5

d_1 = 8

d_2 = 6

i = 5

M_o = $59.5 + \frac{8}{8+6} 5$

= 59.5 + 0.57 (5)

= 59.5 + 2.85

= 62.35

Appendix 18

HOMOGENEITY TEST (PRE-TEST)

Calculation of parameter to get variant of the first class as experimental class sample by using pegwords method and variant of the second class as control class sample by using conventional strategy are used homogeneity test by using formula:

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

Hypotheses:

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

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

A. Variant of the VII-1class is:

The Initial Name of Students (n)	**Xi**	**Xi^2**
1. HSA	35	1225
2. RMP	35	1225
3. AMP	40	1600
4. MFB	40	1600
5. FAP	40	1600
6. USD	45	2025
7. SD	45	2025
8. MS	45	2025
9. SAS	45	2025
10. ASN	45	2025
11. NHB	50	2500
12. ATR	50	2500
13. SH	55	3025
14. NAS	55	3025
15. CMA	55	3025
16. PRA	55	3025
17. AS	55	3025
18. RFH	55	3025

19. HB	55	3025
20. SWH	55	3025
21. PAS	55	3025
22. DM	55	3025
23. RAP	60	3600
24. ESS	60	3600
25. HAR	60	3600
26. NAH	60	3600
27. RA	60	3600
28. ASU	60	3600
29. ARL	60	3600
30. DMH	65	4225
31. DHS	65	4225
	1615	86275

n = 31

$\sum xi$ = 1615

$\sum_{xi} 2$ = 86275

So:

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

$$= \frac{31(86275) - (1615)^2}{31(31-1)}$$

$$= \frac{2674525 - 2608225}{31(30)}$$

$$= \frac{66300}{930}$$

$$= 71.29$$

B. Variant of the VII-2 class is:

The Initial Name of Students (n)	Xi	Xi^2
1. KH	40	1600
2. TO	40	1600
3. ASR	40	1600
4. IPS	45	2025
5. NHP	45	2025
6. RAH	50	2500
7. RDL	50	2500
8. RH	50	2500
9. MIS	50	2500
10. RKS	50	2500
11. RHS	55	3025
12. PAZ	55	3025
13. HRS	55	3025
14. PH	55	3025
15. YEP	55	3025
16. WF	55	3025
17. JEH	60	3600
18. AJD	60	3600
19. RD	60	3600
20. IMS	65	4225
21. RS	65	4225
22. RKB	65	4225
23. ADS	65	4225
24. AFS	65	4225
25. AR	70	4900
26. EAN	70	4900
27. AWS	70	4900
28. SRA	70	4900
Total	1575	91025

n = 28

$\sum xi$ = 1575

$\sum_{xi} 2$ = 91025

So:

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

$$= \frac{28(91025) - (1575)^2}{28(28-1)}$$

$$= \frac{2548700 - 2480625}{28(27)}$$

$$= \frac{68075}{756}$$

$$= 90.04$$

C. Variant of the VII- 3 class is:

The Initial Name of Students (n)	Xi	Xi^2
1. EKL	40	1600
2. MRA	40	1600
3. MRF	45	2025
4. PA	45	2025
5. LAS	50	2500
6. INS	50	2500
7. MU	50	2500
8. APN	50	2500
9. AR	55	3025
10. FH	55	3025
11. NAS	60	3600
12. AF	60	3600
13. NFT	60	3600
14. KIH	60	3600
15. DLH	60	3600
16. MA	60	3600
17. IMG	60	3600
18. MAH	60	3600
19. RWS	60	3600
20. RA	65	4225
21. MRD	65	4225

22. RA	65	4225
23. BSP	65	4225
24. AFH	65	4225
25. HP	70	4900
26. RFS	70	4900
27. SAS	70	4900
28. NN	70	4900
Total	1625	96425

n = 28

$\sum xi$ = 1625

$\sum_{xi} 2$ = 96425

So:

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

$$= \frac{28(96425) - (1625)^2}{28(28-1)}$$

$$= \frac{2699900 - 2640625}{28(27)}$$

$$= \frac{59275}{756}$$

$$= 78.40$$

The Formula was used to test hypothesis was:

1. VII-1 and VII-2 :

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

So:

$$F = \frac{90.04}{71.29}$$

$$= 1.26$$

After doing the calculation, researcher found that F_{count} = 1.26 with α 5 % and dk = 31 & 28 from the distribution list F, researcher found that F_{table} = 2.042 & 2.052, cause $F_{count} < F_{table}$ (1.26< 2.042 & 2.052). So, there is no difference the variant between the VII-1 class and VII-2 class. It means that the variant is homogenous.

2. VII-1 and VII-3 :

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

So:

$$F = \frac{78.40}{71.29}$$

$$= 1.09$$

After doing the calculation, researcher found that F_{count} = 1.09 with α 5 % and dk = 31 & 28 from the distribution list F, researcher found that F_{table} = 2.042 & 2.052, cause $F_{count} < F_{table}$ (1.09< 2.042 & 2.052). So, there is no difference the variant between the VII-1 class and VII-3 class. It means that the variant is homogenous.

3. VII-2 and VII-3 :

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

So:

$$F = \frac{90.04}{78.40}$$

$$= 1.14$$

After doing the calculation, researcher found that F_{count} = 1.14 with α 5 % and dk = 28 from the distribution list F, researcher found that F_{table} = 2.052, cause $F_{count} < F_{table}$ (1.14< 2.052). So, there is no difference the variant between the VII-2 class and VII-3 class. It means that the variant is homogenous.

Appendix 17

RESULT OF NORMALITY TEST IN PRE-TEST

RESULT OF THE NORMALITY TEST OF VII-1 IN PRE-TEST

1. The score of pre-test from low score to high score:

   35 35 40 40 40 45 45 45 45 45

   50 50 55 55 55 55 55 55 55 55

   55 55 60 60 60 60 60 60 60 65 65

2. High = 65

   Low = 35

   Range = High – Low

   = 65 – 35

   = 30

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

   = 1 + 3,3 log (31)

   = 1 + 3,3 (1,49)

   = 1 + 4.91

   = 5.91

   = 6

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

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
35 – 39	2	37	4	8	16	32
40 – 44	3	42	3	9	9	27
45 – 49	5	47	2	10	4	20
50 – 54	2	52	1	2	1	2
55 – 59	10	57	0	0	0	0
60 – 64	7	62	-1	-7	1	7
65 – 69	2	67	-2	-4	4	8
i = 5	31	-	-	18	-	96

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

$= 57 + 5(\frac{18}{31})$

$= 57 + 5(0.58)$

$= 57 + (2.9)$

$= 59.9$

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

$= \sqrt[5]{\frac{96}{31} - \left(\frac{18}{31}\right)^{2}}$

$= \sqrt[5]{3.09 - (-0.58)^{2}}$

$= \sqrt[5]{3.09 - 0.336}$

$= \sqrt[5]{2.754}$

$= 5\ (1{,}65)$

$= 8.25$

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0-f_h)}{f_h}$
	69.5	1.16	0.3770				
65 – 69				0.16	4.96	2	-0.59
	64.5	0.55	0.2088				
60 – 64				-0.27	-8.37	7	-1.83
	59.5	-0.04	0.48405				
55 – 59				0.22	6.82	10	0.46
	54.5	-0.65	0.25785				
50 – 54				0.15	4.65	2	-0.56
	49.5	-1.26	0.10383				
45– 49				0.07	2.17	5	1.30
	44.5	-1.86	0.03144				
40- 44				0.02	0.62	3	3.83
	39.5	-2.47	0.00676				
35 - 39				0.00	0	2	2.00
	34.5	-3.07	0.00107				
						X^2	4.61

Based on table above,reseracher found that x^2_{count} = 4.61 while x^2_{table}=5.991 cause x^2_{cause}< x^2_{table} (4.61 <5.991) with degree of freedom dk = 5 – 3 = 2and significat level α = 5%. So distribution of VII-1 class (Pre-test) is normal.

6. Median

No	Interval of Classes	F	fk
1	35 - 39	2	2
2	40 - 44	3	5
3	45 - 49	5	10
4	50 - 54	2	12
5	**55 - 59**	**10**	22
6	60 - 64	7	29
7	65 - 69	2	31

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

Bb = 54.5

F = 12

fm = 10

i = 5

n = 31

1/2n =15.5

So :

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

$$= 54{,}5 + 5\left(\frac{15.5-12}{10}\right)$$

$$= 54.5 + 5(0.35)$$

$$= 54.5 + 1.75$$

= 56.25

7. Modus

No	Interval of Classes	F	fk
1	35 - 39	2	2
2	40 - 44	3	5
3	45 - 49	5	10
4	50 - 54	2	12
5	**55 - 59**	**10**	22
6	60 - 64	7	29
7	65 - 69	2	31

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

L = 54.5
d_1 = 8
d_2 = 3
i = 5
$M_o = 54.5 + \frac{8}{8+3}\, 5$
= 54.5 + 0.72 (5)
= 54.5 + 3.6
= 58.1

RESULT OF THE NORMALITY TEST OF VII-3 IN PRE-TEST

1. The score of pre test from low score to high score:
   40 40 45 45 50 50 50 50 55 55
   60 60 60 60 60 60 60 60 60 65
   65 65 65 65 70 70 70 70

2. High = 70
   Low = 40
   Range = High – Low
   = 70 – 40
   = 30

3. Total of Classes = 1 + 3,3 log (n)
   = 1 + 3,3 log (28)
   = 1 + 3,3 (1,44)
   = 1 + 4.75
   = 5.75
   = 6

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

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
40 – 44	2	42	4	8	16	32
45 – 49	2	47	3	6	9	18
50 – 54	4	52	2	8	4	16
55 – 59	2	57	1	2	1	2
60 – 64	9	62	0	0	0	0
65 – 69	5	67	-1	-5	1	5
70 – 74	4	72	-2	-8	4	16
i = 5	28	-	-	11	-	89

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

$$= 62 + 5\left(\frac{11}{28}\right)$$

= 62 + 5 (0.39)
= 62 + (1.95)
= 63.95

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

$$= \sqrt[5]{\frac{89}{28} - \left(\frac{11}{28}\right)^2}$$

$$= \sqrt[5]{3.17 - (0.39)^2}$$

$$= \sqrt[5]{3.17 - 0.15}$$

$$= \sqrt[5]{3.02}$$

= 5 (1.73)

= 8.65

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0-f_h)}{f_h}$
70─74	74.5	1.21	0.3869				
				0.148	4.14	4	-0.03
65 – 69	69.5	0.64	0.2389				
				0. 215	6.02	5	-0.16
60 – 64	64.5	0.06	0.0239				
				-0.28113	-7.87	9	-2.14
55 – 59	59.5	-0.51	0.30503				
				0.16717	4.68	2	-0.57
50 – 54	54.5	-1.09	0.13786				
				0.0904	2.53	4	0.58
45 – 49	49.5	-1.67	0.04746				
				0.03491	0.97	2	1.06
40 – 44	44.5	-2.24	0.01255				
				0.01015	0.28	2	6.14
	39.5	-2.82	0.00240				

	X^2	4.88

Based on table above, reseracher found that x^2_{count} = 4.88 while x^2_{table} = 5.991 cause $x^2_{cause} < x^2_{table}$ (4.88 < 5.991) with degree of freedom dk = 5 – 3 = 2 and significat level α = 5%. So distribution of VII-3 class (Pre-test) is normal.

6. Median

No	Interval of Classes	F	Fk
1	40 – 44	2	3
2	45 - 49	2	5
3	50 - 54	4	10
4	55 - 59	2	16
5	**60 - 64**	**9**	19
6	65 - 69	5	24
7	70 - 74	4	28

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

Bb = 59.5
F = 16
fm = 9
i = 5
n = 28
1/2n =14

So :

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

$$= 59.5 + 5\left(\frac{14-16}{9}\right)$$

= 59.5 + 5 (-0.22)
= 59.5 + (-1.1)
= 58.4

7. Modus

No	Interval of Classes	F	Fk
1	40 – 44	2	3
2	45 - 49	2	5
3	50 - 54	4	10
4	55 - 59	2	16
5	**60 - 64**	**9**	19
6	65 - 69	5	24
7	70 - 74	4	28

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

L = 59.5
d_1 = 7
d_2 = 4
i = 5
$M_o = 59.5 + \frac{7}{7+4}\, 5$
= 59.5 + 0.63 (5)
= 59.5 +3.15
= 62.65

RESULT OF THE NORMALITY TEST OF VII-2 IN PRE-TEST

1. The score of pre test from low score to high score:
   40 40 40 45 45 50 50 50 50 50
   55 55 55 55 55 55 60 60 60 65
   65 65 65 65 70 70 70 70

2. High = 70
   Low = 40
   Range = High – Low
   = 70 – 40
   = 30

3. Total of Classes = 1 + 3,3 log (n)
   = 1 + 3,3 log (28)
   = 1 + 3,3 (1,44)
   = 1 + 4.75
   = 5.75
   = 6

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

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
40 – 44	3	42	3	9	9	27
45 – 49	2	47	2	4	4	8
50 – 54	5	52	1	5	1	5
55 – 59	6	**57**	0	0	0	0
60 – 64	3	62	-1	-3	1	3
65 – 69	5	67	-2	-10	4	20
70 – 74	4	72	-3	-12	9	36
i = 5	28	-	-	-7	-	99

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

$$= 57 + 5\left(\frac{-7}{28}\right)$$

= 57 + 5 (-0.25)
= 57 + (-1.25)
= 55.75

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

$$= \sqrt[5]{\frac{99}{28} - \left(\frac{-7}{28}\right)^2}$$

$$= \sqrt[5]{3.53 - (-0.25)^2}$$

$$= \sqrt[5]{3.53 - 0.062}$$

$$= \sqrt[5]{3.468}$$

= 5 (1.862)

= 9.31

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0-f_h)}{f_h}$
70─74	74.5	2.01	0.4778				
				0.04	1.12	4	2.57
65 – 69	69,5	1.47	0.4297				
				0. 10	2.8	5	0.78
60 – 64	64,5	0.93	0.3238				
				0.16	4.48	3	-0.33
55 – 59	59,5	0.40	0.1554				
				-0.29	-8.12	6	-1.73
50 – 54	54,5	-0.13	0.44828				
				0.19	5.32	5	-0.06
45 – 49	49,5	-0.67	0.25143				
				0.13	3.64	2	-0.45
40 – 44	44,5	-1.20	0.11507				
				0.07	1.96	3	0.53
	39,5	-1.74	0.04093				

X^2	1.31

Based on table above, reseracher found that x^2_{count} = 1.31 while x^2_{table} = 5.991 cause $x^2_{cause} < x^2_{table}$ (1.31 < 5.991) with degree of freedom dk = 5 – 3 = 2 and significat level α = 5%. So distribution of VII-2 class (Pre-test) is normal.

6. Median

No	Interval of Classes	F	Fk
1	40 – 44	3	3
2	45 - 49	2	5
3	50 - 54	5	10
4	**55 - 59**	**6**	16
5	60 - 64	3	19
6	65 - 69	5	24
7	70 - 74	4	28

Position of Me in the interval of classes is number 4, that:

Bb = 54.5
F = 10
fm = 6
i = 5
n = 28
1/2n =14

So :

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

$$= 54.5 + 5\left(\frac{14-10}{6}\right)$$

= 54.5 + 5 (0.66)
= 54.5 + 3.3
= 57.8

7. Modus

No	Interval of Classes	F	Fk
1	40 – 44	3	3
2	45 - 49	2	5
3	50 - 54	5	10
4	**55 - 59**	**6**	16
5	60 - 64	3	19
6	65 - 69	5	24
7	70 - 74	4	28

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

L = 54.5
d_1 = 1
d_2 = 3
i = 5
$M_o = 54.5 + \frac{1}{1+3}\, 5$
= 54.5 + 0.25 (5)
= 54.5 +1.25
= 55.75

Appendix 16

Score of Pre Test

The scores in the following table are the result of students' vocabulary mastery in pre-test:

a. VII-1

The Initial Name of Students (n)	**Xi**	**Xi^2**
1. HSA	35	1225
2. RMP	35	1225
3. AMP	40	1600
4. MFB	40	1600
5. FAP	40	1600
6. USD	45	2025
7. SD	45	2025
8. MS	45	2025
9. SAS	45	2025
10. ASN	45	2025
11. NHB	50	2500
12. ATR	50	2500
13. SH	55	3025
14. NAS	55	3025
15. CMA	55	3025
16. PRA	55	3025
17. AS	55	3025
18. RFH	55	3025
19. HB	55	3025
20. SWH	55	3025
21. PAS	55	3025
22. DM	55	3025
23. RAP	60	3600
24. ESS	60	3600
25. HAR	60	3600
26. NAH	60	3600
27. RA	60	3600
28. ASU	60	3600
29. ARL	60	3600
30. DMH	65	4225
31. DHS	65	4225
	1615	86275

b. VII-2

The Initial Name of Students (n)	Xi	Xi^2
1. KH	40	1600
2. TO	40	1600
3. ASR	40	1600
4. IPS	45	2025
5. NHP	45	2025
6. RAH	50	2500
7. RDL	50	2500
8. RH	50	2500
9. MIS	50	2500
10. RKS	50	2500
11. RHS	55	3025
12. PAZ	55	3025
13. HRS	55	3025
14. PH	55	3025
15. YEP	55	3025
16. WF	55	3025
17. JEH	60	3600
18. AJD	60	3600
19. RD	60	3600
20. IMS	65	4225
21. RS	65	4225
22. RKB	65	4225
23. ADS	65	4225
24. AFS	65	4225
25. AR	70	4900
26. EAN	70	4900
27. AWS	70	4900
28. SRA	70	4900
Total	1575	91025

c. VII-3

The Initial Name of Students (n)	Xi	Xi^2
1. EKL	40	1600
2. MRA	40	1600
3. MRF	45	2025
4. PA	45	2025
5. LAS	50	2500
6. INS	50	2500
7. MU	50	2500
8. APN	50	2500
9. AR	55	3025
10. FH	55	3025
11. NAS	60	3600
12. AF	60	3600
13. NFT	60	3600
14. KIH	60	3600
15. DLH	60	3600
16. MA	60	3600
17. IMG	60	3600
18. MAH	60	3600
19. RWS	60	3600
20. RA	65	4225
21. MRD	65	4225
22. RA	65	4225
23. BSP	65	4225
24. AFH	65	4225
25. HP	70	4900
26. RFS	70	4900
27. SAS	70	4900
28. NN	70	4900
Total	1625	96425