THE EFFECT OF USING WORD WALL STRATEGY ON STUDENTS' VOCABULARY MASTERY AT GRADE VII MTs N 2 PADANGSIDIMPUAN

A THESIS

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

Written By :

RAHMAYANI RITONGA
Reg. No. 15 203 00100

ENGLISH EDUCATIONAL DEPARTMENT

TARBIYAH AND TEACHER TRAINING FACULTY

STATE INSTITUTE FOR ISLAMIC STUDIES

PADANGSIDIMPUAN

2019

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2019

LETTER OF AGREEMENT

Term : Munaqosyah
    a.n. Rahmayani Ritonga
Item : 7 (seven) exemplars

Padangsidimpuan,   Desember 2019
To:
Dean Tarbiyah and
Teacher Training Faculty
In-
Padangsidimpuan

Assalamu'alaikum Wr.Wb.

After reading, studying and giving advice for necessary revision on thesis belongs to **Rahmayani Ritonga**, entitled *"The Effect of Using Word Wall Strategy on Students' Vocabulary Mastery at Grade VII MTs Negeri 2 Padangsidimpuan"*, we approved that the thesis has been acceptable to complete the requirement to fulfill for the degree of Graduate of Education (S.Pd.) in English.

Therefore, we hope that the thesis will soon be examined in front of the Thesis Examiner Team of E. Dept. of Tarbiyah and Teacher Training Faculty IAIN Padangsidimpuan. Thank you.
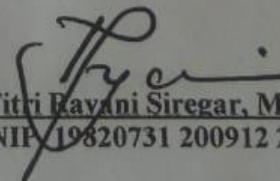
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DECLARATION LETTER OF SELF THESIS COMPLETION

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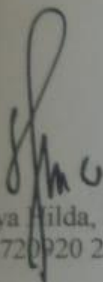
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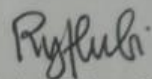Reg. Number 15 203 00100

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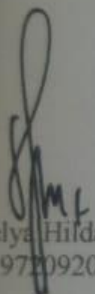
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بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ

Praised to Allah swt., the most Creator and Merciful who has given me the health, time, knowledge and strength to finish the thesis entitled "The Effect of Using Word Wall Media on Students' Vocabulary Mastery at Grade VII MTs Negeri 2 Padangsidimpuan". Besides, peace and greeting be upon to the prophet Muhammad saw. That has brought the human from the darkness era into the brightness era**.**

It is a pleasure to acknowledge the help and contribution to all of lecturers, institution, family and friends who have contributed in different ways hence this thesis is processed until it becomes a complete writing. In the process of finishing this thesis, I got a lot of guidance and motivation from many people. Especially from my beloved parents and also my big family who have tought me how to be patient, praying and survive with my own hand who never be tired to give me the advice and always support me in any condition. Additionally, in this chance I would like to express my deepest gratitude to the following people:

1. Mrs. Eka Sustri Harida, M.Pd., as my first advisor and Mrs. Fitri Rayani Siregar, M.Hum., as my second advisor who has guided me to make a good thesis, who have been the great advisor for me and gave me many ideas and criticisms in writing this thesis.
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11. All the people who have helped me to finish my study that I can not mention one by one thank you for your support. May Allah bless them. Amin.

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

Padangsidimpuan,   Oktober 2019

Researcher

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ABSTRACT

This research focused about the effect of using Word WallStrategy on Students' Vocabulary Mastery at Grade VII MTs Negeri 2 Padangsidimpuan. The problems of this research were students are less in vocabulary, students had lack motivation in learning vocabulary, students are difficult in remembering new vocabulary, also the English teacher needs some technique in teaching vocabulary mastery. The purpose of this research was to find out the effect of using Word Wall Strategy on Students' Vocabulary Mastery at Grade VII MTs Negeri 2 Padangsidimpuan.

This research employed experimental research. The population of this research was VII classes of MTs Negeri 2 Padangsidimpuan. The total of population were fifth classes. Then, the sample of the research was 2classes, experimental 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.

Based on the result of the research, researcher showed the description of the data was found that mean score of pre-test in experimental class was higher than control class (58.96>54.62) in enough categorized. Then, after using Word Wall Strategythe result of mean score post-test experimental class was higher than control class (72.18>65.32), and the score of t_{count} was bigger than t_{table} (14.2>2.617). It means that hyphothesis alternative (H_a) was accepted. It was concluded that there was significant effect of using Word Wall Strategy on Students' Vocabulary Mastery at Grade VII MTs Negeri 2 Padangsidimpuan.

Keywords: *Word Wall, Vocabulary Mastery and Noun.*

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ABSTRAK

Penelitian ini focus tentang pengaruh penggunaan dinding kata pada Penguasaan Kosakata Siswa di Kelas VII MTs Negeri 2 Padangsidimpuan. Permasalahan dalam penelitian ini adalah siswa kurang memiliki kosakata, siswa kurang memiliki motivasi dalam belajar kosakata, siswa sulit mengingat kosakata baru, juga guru Bahasa Inggris membutuhkan teknik dalam mengajar penguasaan kosakata. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh penggunaan strategi dinding kata pada Penguasaan Kosakata Siswa di Kelas VII MTs Negeri 2 Padangsidimpuan.

Penelitian ini menggunakan penelitian eksperimental. Populasi penelitian ini adalah kelas VII MTs Negeri 2 Padangsidimpuan. Total populasi adalah lima kelas. Kemudian, sampel penelitian adalah 2 kelas, kelas eksperimen (VII-1) dan kelas kontrol (VII-2). Itu diambil secara acak setelah melakukan uji normalitas dan homogenitas. Untuk mengumpulkan data, peneliti menggunakan tes untuk mengukur penguasaan kosakata siswa. Untuk menganalisis data, peneliti menggunakanuji-T.

Berdasarkan hasil penelitian, penelitian ini menunjukkan bahwa uraian data ditemukan skor rata-rata pre-test di kelas eksperimen lebih tinggi dari kelas kontrol (58.96> 54.62) pada kategori cukup. Kemudian, setelah menggunakan strategi dinding kata hasil rata-rata skor post-test kelas eksperimen lebih tinggi dari kelas kontrol (72.18> 65.32), dan skor t_{hitung} lebih besar dari t_{tabel} (14.2> 2.617). Itu artinya alternative hipotesis (Ha) diterima. Disimpulkan bahwa ada pengaruh signifikan penggunaan dinding kata pada Penguasaan Kosakata Siswa di Kelas VII MTs Negeri 2 Padangsidimpuan.

Kata kunci: *Dinding kata, Penguasaan Kosakata dan Kata benda.*

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CHAPTER I

INTRODUCTION

A. Background of the Problem

Vocabulary is one of the important language elements that should developed by students. Vocabulary is very crucial in order to construct the phrases, clauses, sentences, and paragraphs that are used in speaking, listening, reading, and writing. Students cannot do anything with four skills if they do not know vocabulary and any single words well. However, mastering English vocabulary is not easy for Indonesian students because English absolutely different with Indonesian language. They are different in spelling, pronounciation and meaning. So, to achieve the language skills, Indonesian students should have learned a lot of about English vocabulary.

Vocabulary is an important component of language in learning a language, especially in English as a foreign language. Learner need to master vocabulary, the more vocabularies are mastered by learners, the better will be their performance an all aspect in learning of English and therefore students who enrich in vocabularies will be successful in language learning.

Teaching English to students Junior High School is not easy because the students are generally aggressive, move from one place to another places, disturb their friends or eating snacks in the classroom when the teacher explained the lesson and make a noisy when teaching and learning process. A good English teacher must able to control the students and make them interest to the lesson, get the students to be enjoyable in learning, friendly, and respect.

Most of the students said that English is difficult to learned and make confused. That is the reason why the teacher must have ability to create the technique and friendly environment to stimulate the students, maintain interest to various activities and give the students successful in learning.

Moreover, in junior high school one of the purposes of learning English itself is in ordering to have a lot of vocabulary to master in all of the skill in English. Thus, vocabulary is one of the significant parts of English, and it's learning in an efficient way is very considerable. There many subjects or materials taught in this level such as vocabulary (nouns, adjectives, verbs, and so on), reading, speaking, and etc, and also based on their syllabus and their ability in teaching English.

However, many students have difficulties in vocabulary.[1] The main problem of vocabulary is the students less in vocabulary mastery. The students are difficult to read and pronounce the vocabulary so make the students lazy to learn English vocabulary.

The students have lack motivation in learning vocabulary. The motivation to the students in learning English vocabulary still less. It makes the students feel not sure of getting satisfactory grades in learning English vocabulary. The students are not able to finish the tasks English that given by the teacher.

The students are difficult in remembering new vocabulary. The students are difficult in remembering new words that given by the teacher, they are lazy

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[1] Ms. NilaSuaidah, *Private Interview with English Teacher on January* 14th, 2019 in MTs Negeri 2 Padangsidimpuan.

to pronounce and remember the words. When the teacher gives the vocabulary to the students, only one day they remember the words, and tomorrow if the teacher asks the vocabulary again, the students forget and don't know what the teacher said.

The last problem, the teacher can not make an interesting learning process in the classroom. The teacher asks the students to read the vocabulary. Then the teacher asks the students to translate it to Indonesian language and tell the meaning about the words. As a result the students become bored and can not enjoy the learning process in the classroom.

Actually, there are many media of teaching and learning English vocabulary that can be used by English teacher, such as flash card, picture dictionary, picture word, word card, word wall, guessing word, and so on. Every media of course has advantages and disadvantages. That is why the English teacher should be wise and skillful to determine the suitable and interesting media of teaching and learning English Vocabulary which is appropriate with this school and the students' condition. This research used word wall as a strategy to help the students to solve the problem about vocabulary.

Jennifer Cronsberry states that word wall is a group of words that are displayed on a wall, bulletin board, chalkboard, or whiteboard in the classroom.[2] It meant the technique direct students' attention to the words on the wall during the lessons, in this way the students saw the progress in developing

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[2] Jennifer Cronsberry, "Word Wall A Support for Literacy in Secondary School Classrooms," 2004, p.3, www.curriculum.org.

their reviewed of vocabulary and have a reference point when working on other vocabulary building activities.

The result of many researchers shown that word wall media can improve students' vocabulary mastery. Chusnul Urbayati's research.[3] She found that there was a significant improvement after using word wall on students' vocabulary mastery. Word wall will help students see patterns and relationship in words, thus building phonics and spelling skills. Another previous study by Siska Nuzulina[4] shown that word wall media can improve students' vocabulary mastery. Word wall provide reference support for children during reading and writing activities. So, word wall has any effect on students' vocabulary mastery.

Based on the above explanation, the researcher is interested to introduce word wall strategy to teach vocabulary mastery. The research wants to know whether word wall strategy will give significant effect to students' vocabulary mastery.

B. Identification of the Problem

Here the researcher identifies the problems of the research like:

1. The students are less in vocabulary mastery.

2. The students have lack motivation in learning vocabulary.

3. The students are difficult in remembering new vocabulary.

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[3]Chusnul Urbayati, "The Effect of Word Wall Media on Students' Vocabulary Mastery at the Seventh Grade of SMPN 5 Kediri in the Academic Year 2016/2017" 1, no. 2 (2017), http://simki.unpkediri.ac.id/mahasiswa/file_artikel/2017/cad339e9e523b465e9418538688313d6.pdf.

[4]Siska Nuzulina, "The Influence of Using Word Wall Toward Students' Vocabulary Mastery at MTs Al-Furqan Dumai," 2011, 90, http://repository.uin-suska.ac.id/354/1/2011_2011817.pdf.

4. The teacher needs some technique in teaching vocabulary mastery.

C. Limitation of the Problem

Based on the above identifications of the problems, there are some problems involving in this research. In this research, the researcher only focuses on students' problem in vocabulary mastery and the effect of using Words Wall Strategy on students' vocabulary mastery at grade VII MTs Negeri 2 Padangsidimpuan. The research focuses on students' vocabulary mastery especially noun. It is about the name of thing in the school and the name of public places.

D. Formulations of the Problem

The formulation of the problem in this research are:

1. How is the students' vocabulary mastery before using Words Wall Strategy at grade VII MTs N 2 Padangsidimpuan?

2. How is the students' vocabulary mastery after using Words Wall Strategy at grade VII MTs N 2 Padangsidimpuan?

3. Is there the significant effect of Words Wall Strategy on students' vocabulary mastery at grade VII MTs N 2 Padangsidimpuan?

E. Purposes of the Research

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

1. To find out the students' vocabulary mastery before using Word Wall Strategy at grade VII MTs N 2 Padangsidimpuan.

2. To find out the students' vocabulary mastery after using Word Wall Strategy at grade VII MTs N 2 Padangsidimpuan.

3. To examine whether there is or there is not any significant effect of using Words Wall Strategy at grade VII MTs N 2 Padangsidimpuan.

F. Significances of the Problem

This result of the research is expected to be useful at least in four domains, they are:

1. Headmaster, to encourage English teacher to use the best strategy for students' vocabulary.

2. English teacher, to add references strategy in teaching and learning.

3. Researcher, being a contribution to find out the best method for teaching vocabulary mastery.

4. Other researcher, as the information to do more related research.

G. Definition of Operational Variables

1. Word Wall

   Word Wall is collection of words which are displayed on a wall that content some of pictures and explained with the words to make it easier to study about vocabulary.

2. Vocabulary mastery

   Vocabulary mastery is one of the language aspects that must to learnt. Students will be able to communicate well as long as understand and learn about vocabulary.

H. Systematic of the Thesis

   The systematic of this research is divided into five chapters. Each chapter consists of many sub chapters with detail as follow: in chapter one, it is consist of background of the problem, identification of the problem, limitation of the problem, formulation of the problem, purpose of research, significances of the research, and systematic of the thesis.

   In chapter two, it is consists of the theoritical description, which consists of sub chapters such as theoritical description of reading comprehension, and description of Word Wall media. Then review of related findings, conceptual frame work and hypothesis.

   In chapter three, it is consist of research methodology which consists of time and place of the research, research methodology, population and sample, instrument of research, the techniques of data collection and the last the technique of data analysis and outline of the thesis.

   In chapter four, it is the result of the research talking about the analysis of data. This chapter four, it is consist of description of data, hypothesis testing, discussion and the threats of research.

   Finally, in chapter five consists of conclusion that is giving conclusion about the result of the research and suggestion that given suggestion to the students and teachers by reseacher.

CHAPTER II

THEORITICAL DESCRIPTION

A. Vocabulary

1. Definition of Vocabulary

Vocabulary is acquired incidentally through indirect exposure to words and intentionally through explicit instruction in specific words and word-learning strategies. Richards and Renandya state that vocabulary is a core component of language proficiency and provides much of the basis to how well learners speak, listen, read, and write.[1] Richards states that vocabulary is one of the most obvious components of language and one of the first things applied linguistics turned their attention to.[2] So, vocabulary is one of the basic components in language.

Hornby in Advance Learners Dictionary of Current English says that vocabulary is: (1) all the words that a person knows or uses, (2) all the words in a particular language, (3) the words that people use when they are talking, and (4) a list of words with their meanings, especially in a book for learning a foreign language.[3] So, vocabulary is the words that person uses, particular language, uses for talking and have meaning.

According to Nation says that vocabulary is central to language. The quotations mean that vocabulary is the main element of language. Language

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[1]Jack C. Richard & Willy A. Renandya, *Methodology in Language Teaching and Anthology of Current Practice* (USA: Cambridge University Press, 2002), p.255.
[2]J. Richard, *Curriculum Development in Language Teaching* (Cambridge: Cambridge University Press, 2000), p.4.
[3]A.S Hornby, *Oxford Advanced Learner's Dictionary* (New York: Oxford University Press, 1995), p.1506.

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is the expression which is constructed by words or vocabulary. Words are the tools which used to think, to express idea and feeling, and to learn about world. In language learning vocabulary is an essential component. It links to four skills of listening, speaking, reading, and writing.[4] So, vocabulary can use in all skills in English language.

Hatch and Brown define vocabulary as a list of target language words for particular language or a list of words that the individual speaker might be.[5] So, vocabulary become target language and particular language for individual speaker.

It can be said that vocabulary is a word or a list of words contained in a language and as a basic tool for communicate among those speakers and used by a group or individual.

2. Kinds of vocabulary

There are four kinds of vocabulary. Children begin to acquire listening and speaking vocabularies many years before they start to build reading and writing vocabularies.

There are four kinds of vocabulary, they were:

a) Listening vocabulary
   The words we hear and understand. Starting in the womb, fetuses can detect sounds as early as 16 weeks. By the time we reach adulthood, most of us will recognize and understand close to 50.000 words. Children who are completely deaf do not exposed to a listening vocabulary.
b) Speaking vocabulary
   The words we use when we speak. Our speaking vocabulary is relatively limited. Most adults use a more 5.000 to 10.000 words

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[4] I. S. P. Nation, *Teaching Vocabulary and Technique,* USA: Haine, 2008.
[5] Evelyn Hatch and Cheryl Brown, *Vocabulary, Semantics, and Language Education* (Cambridge: Cambridge University Press, 1995), p.368-369.

for all their conversations and instructions. This number is much less than our listening vocabulary most likely due to ease of use.

c) Reading vocabulary

The words we understand when we read text. We can read and understand many words that we do not use in our speaking vocabulary.

d) Writing vocabulary

The words we can retrieve when we write to express ourselves. We generally find it easier to explain ourselves orally, using facial expression and intonation to help get our ideas across, then to find just the right words to communicate the same ideas in writing. Our writing vocabulary is strongly influenced by the words we can spell.[6]

Vocabulary varies in the four skills of language. Generally, students will absorb listening and speaking vocabulary before coming to reading and writing vocabulary.

According to Thornbury in Harmer, there are two kinds of vocabulary as follows:

1) Receptive vocabulary or passive vocabulary
Receptive vocabulary can be understood only through listening and reading. Someone does not need to know much about the receptive vocabulary because someone rarely use 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) Productive vocabulary 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.[7]

Based on the above explanation, the researcher concluded that receptive vocabulary refers to the words we understand through reading and

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[6] Judy K. Montgomery, "The Bridge of Vocabulary : Evidence-Based Activities for Academic Success," 2007, www.srsdeaf.org/Downloads/Bridge_of_Vocabulary.pdf.

[7] Jeremy Harmer, "How to Teach Writing" (England: Pearson Education Limited, 2004), P.158, www.longman.com.

listening. Productive vocabulary refers to the words we use to communicate through writing and speaking.

3. Aspect of Vocabulary

Vocabularies are classified into function and content of words. The classification of word intended into nouns, pronouns, verb, adjective, preposition, conjunction, and interjection, in classification of the words are categorized as follows:

a) Adjective is a word used to add to the meaning of noun.
b) Adverb is a word used to add something to the meaning of a verb, and adjectives, or another adverb.
c) 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.
d) Pronoun is a words used in place of nouns.
e) Verb is a word used to say something about some person, place, or thing.
f) Noun is a word used as the name of a person, place, or thing.
g) Conjunction is a word used to join words or sentence.
h) Interjection is a word which expresses some sudden feeling.[8]

Based on the above explanation, the researcher will be focused on noun especially in the name of thing in the school and the name of public places. Noun is a word used as the name a person, place, and thing, an idea or quality of mind is defined as noun[9]. Then, Collins Cobuild says that noun is used to identify a person or thing.[10] So, noun is a word used to identify the name a person, place and thing.

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[8]Wren & Martin, *High School English Grammar & Composition*, ed. Prasada Rao, Revised Ed (Jakarta, 2013), p.3-4.

[9]Jayanthi Dhaksin Murthy, *Contemporary English Grammar* (Delhi: Shivam Printers, 2003), p.6.

[10]Collins Cobuild, *English Grammar Helping Learners with Real English*, First Edit (Beccles & London: HarperCollins, 2003), p.5.

From the statements above, the researcher concluded that noun is a word that used to name of things, such as person, place or things.

a) Kinds of Nouns

Kinds of noun divided into four, those are:

1) Proper Noun

Proper noun is words which begin capital letters and are not at the beginning of sentences are often the names of people, place, or institution.[11] Proper nouns also called proper names are nouns representing unique entities. Example: London, Indonesia, China, Malang, Surabaya, Medan, Zahra, and Akbar, etc.

2) Common Noun

Common noun is noun which states in general cognition.[12] Example: Car, book, radio, man, woman, mountain, sea, etc.

3) Collective Nouns

Collective noun is the name of collection of things or persons.[13] Example: audience, committee, class, crew, crowd, enemy, faculty, family, flock, folk, government, group, herd, jury, majority, minority, nation, orchestra, press, public, team.

4) Material Noun.

Material noun is noun which states matter or essence whatever something made, example:

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[11]Martin Parrot, *Grammar for English Language Teachers*, 2nd Editio (Cambridge: Cambridge University Press, 2010), p.9.
[12]Windy Novia, *Basic English Grammar*, Complete E (Gama Press, 2010), p.17.
[13]Murthy, *Contemporary English Grammar*, p.10.

- This table is made of *wood*

- That temple was built of *marble*

b) Types of Nouns

Types of noun divided into two kinds.[14]

1) Countable Noun.

Countable nouns are things we can count. Example: umbrella, apple, radio, bus, truck, piano, cat, foot, boy and girl.

2) Uncountable Noun.

Uncountable nouns are things we cannot count. They have no plural. Example: sand, sugar, rice, oil, tea, coffee, milk, water, sugar, etc.

c) Form of Nouns

1) Concrete Noun

A concrete noun is a word for a physical object that can be perceived by the senses- we can see, touch, smell the object (**flower, girl**).

2) Abstract Noun

An abstract noun is a word for a concept- it is an idea that exists in our minds only (**beauty, justice, mankind**).

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[14]Murthy, p.10-11.

d) Numbers of Nouns

1) Singular Noun.

Singular noun is a single word. A noun that denotes one person or thing, is said to be in the Singular Number; as, boy, girl, cow, bird, tree, book, etc.[15]

2) Plural Noun.

Plural noun is a word which points objects more than one person or thing, for example, boys, girls, cows, birds, tress, books, etc.[16]

From the four kinds of noun above, the researcher only focuses on two kinds of noun, countable and uncountable noun. Countable noun is the name of a thing that can be counted or divided into singular and plural and it names anything (anyone) that can be counted. While uncountable noun, is the name of a thing that can't be counted or divided into singular or plural. It means uncountable noun is a noun which does have a plural form, and which refers to something that can't be counted.

4. The Ways to Improve Vocabulary

A large vocabulary can help communicate clearly and effectively and the positive repercussions were endless write understandable textbook and letters, communicate your thoughts in any speech, getting well understanding of any listened songs, write better research papers, give memorable speeches that make long tasting impressions and more. The list goes on and on. There were some ways to improve vocabulary, they were:

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[15]Wren & Martin, *High School English Grammar & Composition*, p.10.
[16]Moh. Kusnadi, *Exellen English Grammar* (Surabaya: Bintang Usaha Jaya, 2011), p.19.

a) Read, read, and read

Read a variety of genres from different period, and when uncover new words, use a combination of attempting to derive meaning from the context of the sentence as well as from looking up the definition in a dictionary.

b) Keep a dictionary and thesaurus handy

Dictionary software is a handy tool to define words and when uncover a new word, look up in the dictionary to get both its pronunciation and its meaning(s). And then go to the thesaurus and find similar words and phrases and their opposite.

c) Use a journal

Keeping a journal for of all new words can provide positive reinforcement for learning even more words.

d) Learn a word a day

A day calendar or website – or developing own list of words to learn was a great technique many people use to learn new words.

e) Roots and word families

One of the most powerful tools for learning new words and for deciphering the meaning of other new words was studying Latin and Greek roots. Latin and Greek elements were a significant part of the English language and great tool for learning new words.

f) Games

Words game that challenge and help discover new meaning and new words were a great and fun tool in guest for expanding vocabulary.

g) Conversation

Simply talking with other people can help learn discover new words.[17]

Based on the above explanation, the researcher concluded that the ways to improve vocabulary so many ways that can we do, so we only choose the best one way for study about vocabulary itself.

5. Principles for Teaching Vocabulary

Learners see vocabulary as being a very important part of language learning and one of the difficulties in planning the vocabulary component of a course is making sure that it does not overwhelm other essential parts of the course.

The best way to avoid this is for the teacher and course designer to have a set of guiding principles that can be applied in a variety of teaching and learning situations.[18] These can then be applied in courses where there are parts of the course deliberately set aside for vocabulary development, or in courses where vocabulary is dealt with as it occurs in skill-focused or content-focused lessons.

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[17]Randall S. Hansen, "Easy Ways to Improve and Expand Your Vocabulary: Seven Tips for Learning New Word Communicate," *Pdf*, n.d., http://enhancemyvocabulary.com/improve-expand-vocabulary.html.

[18]David Nunan, *Practical English Language Learning* (New York: McGraw-Hill, 2003), p.135-140.

a) Focus on the most useful vocabulary first.

Some words can be used in a wide variety of circumstances. Others have much more limited use. For example, the word *help* can be used to ask for help, to describe how people work with others, to describe how knowledge, tools, and materials can make people's work easier and so on. The word *advertise* has much more limited usefulness. It is still a useful word to know, but there are many more useful words to learn before this one. Teaching useful vocabulary before less useful vocabulary gives learners the best return for their learning effort.

The most useful vocabulary that every English language learner needs whether they use the language for listening, speaking, reading, or writing, or whether they use the language in formal and informal situations, is the most frequent 1000 word families of English.

b) Focus on the vocabulary in the most appropriate way

The first principle looked at what words to teach and learn. This principle looks at how they should be taught and learned. Here we will look at the four most important vocabulary learning strategies of using word parts, guessing from context, using word cards, and using dictionaries.

c) Give attention to the high frequency words across the four of a course

High frequency vocabulary needs to occur in all four strands of a course. It should get deliberate attention through teaching and study and should be met and used in communicating messages in listening,

speaking, reading and writing. High frequency vocabulary should also be fluently accessible for receptive and productive use.

d) Encourage learners to reflect on and take responsibility for learning.

There is an important principle that lies behind choosing and learning and that is that learners need to realize that they must be responsible for their own learning. Taking this responsibility requires (1) knowledge of what to learn and the range of options for learning vocabulary, (2) skill in choosing the best options, and (3) the ability to monitor and evaluate progress with those options.

6. Teaching Vocabulary

Vocabulary is very important for second language learners; only with sufficient vocabulary learners can effectively express their ideas both in oral and written form. Thus they should have a good idea of how to expand their vocabulary, so that they can improve their interest in learning the language. Language teachers, therefore should posses considerable knowledge on how to manage an interesting classroom so that the learners can gain a great success in their vocabulary learning.

Teaching vocabulary plays an important role in language acquisition because the mastery of vocabulary will help students to master all the language skills; speaking; listening; writing; and reading. The vocabulary will make the students practice life and will strengthen belief that English can be used to express the same ideas or feeling they express in their native language.

Wallace says, there some factors that should consider in teaching vocabulary, they are:

a) Aims. It means the aims of teaching vocabulary is to make the teacher easy to formulate the materials, which will be taught to the students.
b) Quantity. The learners will get confuse if they get many new words. Therefore, the teacher should select new words, which can easy to understand by the learners.
c) Need. In teaching vocabulary, the teacher has to choose the words really needs by the students in communication.
d) Frequent exposure and repetition. It means the teachers should give much practice on repetition so that the students master the target words well. They also give opportunity to the students to use words in speaking and writing.
e) Meaningful presentation. In teaching vocabulary the teacher should present target words in such a way that the meaning of the target words are perfectly clear and unambiguous.
f) Situation and presentation. The teacher tells the students that they have to use the words appropriately. The use of words depends on the situation in which they are used are depends on the person to whom they are speaking.[19]

From the above explanation, the researcher concludes that the teacher must know the different kinds of vocabulary and all of the factors in teaching vocabulary to the learners.

B. Word Wall

1. Definition of Word Wall

Word walls are a collection of words displayed somewhere in the classroom that can be vocabulary significant to the students. Jennifer Cronsberry states that a word wall is a group of words that are displayed on a wall, bulletin board, chalkboard, or whiteboard in the classroom.[20] The words are printed in a large font so that they are easily visible from all

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[19]Mary Lewick Wallace, *Vocabulary Building and Word Study* (New York: Mc Graw: Hill Book Company, 1982), p.207.
[20]Jennifer Cronsberry, "Word Wall A Support for Literacy in Secondary School Classrooms," 2004, p.3, www.curriculum.org.

students seating areas. These words are referred to continually throughout a unit or term by the teacher and students during a variety of activities.

Tracy E. Dennis states that word wall is a teaching tool used to enhance literacy by displaying a collection of common vocabulary/sight words.[21] It can be concluded word wall can increase students' vocabulary. Trisha Callela states that word wall is an organized collection of words written in large print and displayed in an area of the classroom where it can be easily seen.[22] It can be concluded word wall is a collection of words that written in large print and displayed in a wall of a classroom to make easier to teaching vocabulary.

According to Allen in book of "*Inside Words: Tools for Teaching Academic Vocabulary*" word walls can work in a variety of ways to support reading, writing, and talk in classrooms.[23] It can be concluded word wall is one of the tools in teaching vocabulary to support the learning process in the classroom.

Based on Janet Allen stated that word walls were absolutely essential in our classroom, because teacher and students worked together in texts through your shard and reading when students encounter unfamiliar words, and when we build concept-related words or topical categories, we need to have the words in full view so that the student can see them and use them in

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[21]Tracy E. Dennis, "Interactive Word Wall (English Language Learner)," 2013, p.10, http://l.cdn.edl.io.

[22]Trisha Callella, *Making Your Word Wall More Interactive* (Creative Teaching Press, 2001), p.3, https://www.creativeteaching.com/products/making-your-word-wall-more-interactive-ebook.

[23]Janet Allen, *Inside Words: Tools for Teaching Academic Vocabulary, Grades 4-12*, ed. Martha Drury (Portland, Maine: Stenhouse, 2007), p.120, www.stenhouse.com.

reviews their writing.[24] So, word wall is absolutely essential in the classroom, because the teacher and the students work together.

Based on definition above can be concluded that word wall is a collection of words which are displayed on a wall that content some of pictures and explained with the words to make it easier to study about vocabulary.

2. Types of Word Wall

There are some of types of word wall, as follows:

a) High frequency word wall
b) Common patterns, phonograms, phrases wall
c) Content or thematic wall
d) Genre wall
e) Current events wall
f) Personal wall
g) ABC wall
h) Words-We-Know wall
i) Chunking wall
j) Help wall
k) Name wall
l) Literature word wall
m) Prefix/suffix wall
n) Compare/contrast wall[25]

So, types of word wall above can we use in the classroom. Based on the way we do the application and make it more interesting, so the students interest to study vocabulary by using word wall. From the above explanation, the researcher uses ABC wall to teach in the classroom, because it makes the students more easily to collect the things based on their alphabet.

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[24]Janet Allen, p.70.
[25]Dennis, "Interactive Word Wall (English Language Learner)," p.16.

3. Building a Word Wall

To build the vocabulary by using word wall technique, we can follow some of the steps below.

Step 1: Planning the Word Wall

Determine vocabulary needs, purposeful planning provides opportunities to plan instructional activities that focus on core science ideas, performance expectations, and vocabulary with fidelity-all while heeding district guidelines.

First, we distinguish between familiar (prior knowledge) and new vocabulary. We determine familiar vocabulary by looking at the previous grade level science standards. Vocabulary words that students learned in prior grades and may have forgotten are considered familiar vocabulary, and they will be direct taught. New vocabulary is introduced through inquiry and targeted during classroom explanations and discussion and posted on the word wall.

Step 2: Create a Student Worksheet

After identify vocabulary and sketch the interactive word wall, we prepare a student worksheet that mirrors our sketch. Students are given copies of the organizer worksheet that they complete as the word wall is constructed during the unit.

Step 3: Place the Word Wall

Once we have selected vocabulary, have an idea of how specific concepts are linked, sketched the word wall, and prepared the student

organizer worksheet, we are ready to place the word wall frame in our classroom. Wall space and room arrangements often determine the configuration and placement of word walls.

Step 4: Build the Wall in Class

Once the word wall is placed, we are ready to build the wall with our students. We like to plan and structure instruction around the construction of the word wall. We strategically introduce target vocabulary and highlight connections to previously established words or concepts during instruction. When asked to explain their word wall, students eagerly share what elements they contributed and explain the inquiry experience that the wall represents.

Step 5: Complete Student Record Sheet and Word Wall Together

Student organizer worksheets mirror the word wall. As the word wall sections are completed, students fill in corresponding sections of their organizer.[26]

Based on explanation above, it is clear that the students have a copy of the word wall in their possession.

4. **The Advantages and Disadvantages of Word Wall**

There are some advantages of using word wall technique in teaching vocabulary, Word walls provided students with easy access to words they need to know during activities. Other advantages a word wall serves a variety of purposes, included the following:

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[26]Julie Jackson & Rose Narvaez, "Interactive Word Walls (Create a Tool to Increase Science Vocabulary in Five Easy Steps)," n.d., p.44-47.

1) Provides a visual for students that help them to remember words.
2) Serves as an important tool for helping students learn to read.
3) Foster student independence.
4) Promotes reading and writing.[27]

The disadvantages of using word wall technique are:

1) Require time to develop.

2) Require equipment to reproduce.

3) There were sometimes viewed as busy work.[28]

To overcome the disadvantages above the teacher will prepare the material and Word Wall well, gave explanation how to make it clearly, and manage the class effectively.

5. **Creating the Word Wall**

To creating the word wall to make it more interesting there are five ways below.

a) Mount the words on construction paper or card stock and laminate them.
b) Colour code the words, either using coloured markers for lettering or coloured paper for mounting. Colour coding can be used in numerous ways, e.g., same colours can be used to highlight homonyms, synonyms, parts of speech, frequently misspelled words, or categories.
c) Use a wall areas that is visible to all students. If the word wall is to be used effectively, students need to be able to glance at the word wall from their desks while they are working.
d) Mount words on the wall in alphabetical order. Using alphabetical order makes it easier for students to skim the list and find words.
e) Make access to the words easy, e.g., use tape or tacks to mount the words so students can move individual words.[29]

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[27]Callella, *Making Your Word Wall More Interactive*, p.3.
[28]Collin Retter and Neuvelt Valls, *77 Language Game for Young Learners* (London: Longman Group UK Limited, 1984), p.52.
[29]Cronsberry, "Word Wall A Support for Literacy in Secondary School Classrooms," p.5.

Based on explanation above, the researcher concluded that creating the word wall can make the students to be interactive in learning vocabulary, because with using word wall the lessons will be an interesting in teaching and learning process.

C. Teaching Vocabulary Using Word Wall

In teaching vocabulary using word wall, the teacher need to follow some procedure in order to make the teaching learning activity run well. The teacher tried to teach vocabulary using word wall to help them memorize the word easily. Procedure of teaching vocabulary with using word wall:

a) Pre-Teaching

The process in pre-teaching as follows:

1. Teachers come to the class by saying salam.

2. Before the lesson start, the teacher persuades the students to pray.

3. The teacher checks students' attendance and prepare the lesson.

4. The teacher introduces the topic and mentions the goal of study.

5. The teacher involves the lesson to the students in brainstorming activity.

b) While-Teaching

The process in while-teaching as follows:

1. The teacher introduces word wall media to the students and students listen to the teacher's explanation.

2. The teacher explains about vocabulary that will learned by the students.

3. The teacher presents a list of table of word wall.

4. The teacher asks to the students to mention the names of things in the school and the names of public places. Some of students come in front of the class to write the vocabularies in the whiteboard. Then, the teacher asks the students to pronounce the vocabularies.

5. The teacher divides the students into 4 groups.

6. The teacher asks the students to do the discussions to classified the vocabulary based on the kinds and stick the vocabulary on the media that has been provided.

7. The teacher gives scores to groups that have classified as many vocabularies as possible and classifies the appropriate vocabulary based on the type.

8. The teacher and the students correct the answers and gives the scores and the gift to groups that win.

9. The teacher gives the exercises to the students.

c) Post-Teaching

Post teaching activity is intended to review the lesson and check students understanding. The teacher gives some feedback, review and summarizing the learning vocabulary mastery in teaching the name of things in the school and the names of public places. The last, the teacher leads students to conclude the lesson.

Based on the above explanation, the researcher concluded that there are some procedures to teach vocabulary using word wall strategy.

D. Conventional Strategy

Conventional strategy is a traditional way that is used by a teacher in teaching and learning process. Conventional is the strategy or the way that usually used by the teachers to teach the text to students.[30] According to Hudson, conventional is the strategy used by the teachers based on mutual agreement in a school.[31] It meant that conventional strategy is a strategy uses traditional way in teaching and learning process where the teacher will use the lecture method in teaching and learning.

According to Syaiful Bahri Djamarah, there are some kinds of conventional technique or strategy. They are: lecturer method, project method, catechize method, lecture discussion, problem solving method, homework, recitation method, demonstration and experiment method, role play method.[32] Based on observation, the researcher concluded that the teacher at MTs Negeri 2 Padangsidimpuan teaches vocabulary mastery by lecturer method.

There are some procedures of lecture method, they are:

1. Preparation, create learning condition to students.
2. Implementation, teacher convoys material then give opportunity to students for connecting and comparing material of lecturer that accepted through catechizing.

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[30] Jhon Denden, "Conventional Strategy," n.d., http://www.britsnnis.com/EBcheccked/topic/421797/nnucler-strategy/52993/conventional-strategy,.

[31] Hudson, "The Meaning of Conventional Strategy," n.d., http://www.conventional-strategy/topic/54372-conventional-strategy,.

[32] Syaiful Bahri Djamarah, *Strategy Belajar Mengajar* (Jakarta: PT. Asdimahasatya, 2006), p.83.

3. Evaluation, give test to students for looking students' comprehension about material that learned.[33]

The teaching procedures in teaching vocabulary mastery at MTs Negeri 2 Padangsidimpuan are:

1. Teacher explains the material that will be learned.

2. Teacher asks the students to read the vocabulary and pronounce it.

3. The teacher asks the students to open the dictionary to search the meaning.

4. The teacher asks the students to mention the meaning of vocabulary.

5. The teacher asks the students to write the vocabulary into the book note.

E. Review of Related Findings

There are some related findings related to this research. They are: Ridho Istianto, the result of the test showed that there is an increase of 21.07 calculated from pretest and posttest. The mean of pretest is 54.00 while posttest is 81.07. The result of t-test showed that t-ratio -12.500 and t-table 2.060.[34] It means word wall strategy can improve students' vocabulary mastery.

The second is Decy Anggriani, the result showed that the improvement of the students' scores from the first test in orientation test, the mean was 48.48, in the second test in cycle –I test, the mean was 63.68 and the third test

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[33]Djamarah, p.99.
[34]Ridho Istianto, "Improving Students' Vocabulary Mastery Through Word Wall," 2013, http://media.neliti.com.

in cycle –II, it was improved to be 79.04.[35] It means word wall strategy can improve students' vocabulary mastery.

The third is Shallyntang Ditya Pradikasari, Zakiyah Tasnim and I Putu Sukmaantara, the value of t-test was 5.6850 that was higher than the value t-table at significant level of 5% with degree of freedom of 70, that was 1.994.[36] It means word wall strategy can improve students' vocabulary mastery.

The fourth is Rohdearni Wati Sipayung in her research shows that there was the significant effect of word wall media to students' vocabulary achievement. The result of pre-test was 42.58 while post-test was 91.61.[37] It means that word wall strategy can improve students' vocabulary mastery.

The fifth is Muhammad Nuh in his research shows that the use of word wall is effective to improve students' vocabulary mastery after using word wall. The result of data analysis presents that the medium score of students' vocabulary mastery before using word wall is 63.75, while after using word wall is 77.53.[38] It means that word wall strategy can improve students' vocabulary mastery.

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[35]Decy Anggriani, "Improving Students ' Vocabulary Achievement Through Word Walls Strategy," 2013, https://jurnal.unimed.ac.id.

[36]I Putu Sukmaantara Shallyntang Ditya Pradikasari, Zakiyah Tasnim, "The Effect of Using Word Wall on The Eighth Grade Students â€™ Vocabulary Achievement at SMPN 1 Jember in 2015/2016 Academic Year," 2016, https://jurnal.unej.ac.id.

[37]Rohdearni Wati Sipayung, "The Effect of Word Wall Strategy on Students ' Vocabulary Achievement at SMP Negeri 5 Pematangsiantar in the Academic Year 2018 / 2019" I, no. 3 (2019): 251–63, https://www.researchgate.net/publication/329968485_The_Effect_of_Word_Wall_Strategy_on_St udents'_Vocabulary_Achievement_at_SMP_Negeri_5_Pematangsiantar_in_the_Academic_Year_ 20182019.

[38]Muhammad Nuh, "The Effectiveness of Word Wall Media in Improving Students' Vocabulary Mastery (Quasi-Experimental Study in the 7th Grade of SMPN 46 Bandung).," 2017, 73, http://digilib.uinsgd.ac.id/5456/.

In summary, from the above explanation, the researcher concludes that strategy or method can improve and make students enjoy in vocabulary. So, the researcher hopes that WORD WALL strategy can improve and make students enjoy in vocabulary skill and this research completed and contributed previous findings. Moreover, the researcher wants to research about "The Effect of Using Word Wall Strategy on Students' Vocabulary Mastery at Grade VII MTs N 2 Padangsidimpuan".

F. Conceptual Framework

The concepts Word Wall Strategy is to make easier the students on vocabulary mastery. By using Word Wall Strategy it can help the teacher to teach vocabulary mastery more easily and fun. So, the effect of using Word Wall Strategy on students' vocabulary mastery at grade VII MTs Negeri 2 Padangsidimpuan can be seen at picture below:

Students problems are:

1. The students are less in vocabulary mastery
2. The students have lack motivation in learning vocabulary
3. The students are difficult in remembering new vocabulary
4. The teacher needs some technique in teaching vocabulary mastery

Pre test

Experimental class

Control class

Treatment

Using Word Wall

Using Conventional Strategy

Post test

H_o

H_a

Based on above pictures, Word Wall strategy is a teaching strategy used by the teacher to teach vocabulary mastery. Word Wall strategy is a one of the strategy that can make the students easier and will help the students' problem in vocabulary mastery. First, the researcher gave pre-test to know the students' vocabulary mastery before treatment. Then, the researcher gave treatment with using Word Wall strategy for experimental class and conventional strategy for control class. The last, the researcher gave post-test to find out the effect of using Word Wall strategy on students' vocabulary mastery at grade VII MTs Negeri 2 Padangsidimpuan.

G. Hypothesis

The hypothesis of this research:

1. There is the significant effect of using Word Wall Strategy on students' vocabulary mastery at grade VII MTs N 2 Padangsidimpuan (Ha).

2. There is no significant effect of using Word Wall Strategy on students' vocabulary mastery at grade VII MTs N 2 Padangsidimpuan (Ho).

CHAPTER III

RESEARCH METHODOLOGY

A. Place and Time of Research

1. Place of The Research

The location of this research is in MTs Negeri 2 Padangsidimpuan. It is located at Jl. HT. Rizal Nurdin KM. 6,5 PAL-IV Pijorkoling, Padangsidimpuan. It is about 200 meters from the roadside to insides. It is in the South east from Padangsidimpuan.

2. Time of Research

The time of research had been done from January 2019 until December 2019.

B. Design of Research

The kind of this research was quantitative research with experimental method. An experiment is a scientific investigation in which the researcher manipulates one or more independent variables, controls any other relevant variables, and observers the effect of the manipulations on the dependent variable(s).

The experiment is the most powerful quantitative research method for establishing cause-and-effect relationship between two or more variables. There are many experiments done by educational research to test the effects of various practices on student academic achievement and school climate.

The researcher used two classes in this research. One of the classes is taught with Word Wall and it called as experimental class or as a treatment, while the second class as control class is taught with conventional strategy.

Table.1
Research Design

Class	Pre-test	Treatment	Post-test
Experiment Class	√	Word Wall	√
Control Class	√	Convetional Strategy	√

C. Population and Sample

1. Population

The population is the whole of the students at Grade VII of MTs N 2 Padangsidimpuan. So, the population of this research is all of the class VII MTs Negeri 2 Padangsidimpuan. They are VII-1, VII-2, VII-3, VII-4 and VII-5. It can be seen in the following table:

Table.2
Population of the Research

No	Class	Students
1	VII-1	39
2	VII-2	39
3	VII-3	39
4	VII-4	39
5	VII-5	37
	Total	193

2. Sample

In this research, the researcher used random sampling. The researcher chooses VII-1 consist of 39 students and VII-2 consist of 39 students. Therefore, total samples are 78 students. Before using random sampling, the researcher uses normality and homogeneity test, they are[1]:

a) Normality test

Normality test is used to know whether the data of research is normal or not. To know the normality, the researcher use *Chi-Quadrate*-formula. The formula is as follows[2]:

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

Where:

x^2 = Chi-Quadrate

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

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

To calculate the result of *Chi-Quadrate*, it is used significant level 5% (0,05) and degree of freedom as big as total of frequency is lessened 3 (dk = k-3). If result. So, it can be concluded that data is distributed normal.

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[1]Mardalis, *Metode Penelitian: Suatu Pendekatan Proposal* (Jakarta: Bumi Aksara, 2003), p.85.

[2]Anas Sudjiono, *Pengantar Statistik Pendidikan* (Jakarta: PT Raja Grafindo Persada, 2005), p.298.

b) Homogeneity test

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

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

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

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

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

Based on above explanation, the population is the five classes, two classes are selected randomly in order to an experimental class is VII-1 and the control class is VII-2. The researcher chose VII-1 consist of 39 students and VII-2 consist of 39 students. Therefore, total samples are 78 students.

After comparing the normality and homogeneity test of the fifth classes in pre-test, the researcher found that all the classes are homogenous. So, the researcher concluded that VII-1 and VII-2 are the

[3]Agus Irianto, *Statistik Konsep Dasar Dan Aplikasinya* (Padang: P2LPTK Departemen Pendidikan Nasional, 2003), p.276.

samples of this research. The researcher chose these classes because they have similar competence based on their result in pre-test. In this research, the research, the experimental class is VII-1 consist of 39 students and the control class is VII-2 consist of 39 students. Therefore, total of samples are 78 students.

Table.3
Sample of the research

Experimental class	Control class	Total
39	39	78

D. Instrument of Research

Instrument is a tool that can be used by the researcher to collect the valid and reliable data. In this research, the researcher used a test. Good instrument certify the validity of the data. The researcher used test as instrumentation. Test is some of question or view or other tool use for measure skill, knowledge, intelligence and ability. The researcher collected by give the multiple-choice test.

Table.4
Indicators of Vocabulary Mastery (Pre Test)

No	Indicators	Items	Number of Item	Score	Total Score
1	The students are able to identify the name of thing in the school	10	1,4,5,6,7,10,11,12,19,20	5	50
2	The students are able to identify the name of public places	10	2,3,8,9,13,14,15,16,17,18	5	50
TOTAL					100

Table.5
Indicators of Vocabulary Mastery (Post Test)

No	Indicators	Items	Number of Item	Score	Total Score
1	The students are able to identify the name of thing in the school	10	1,3,4,5,7,10,14,15,17,20	5	50
2	The students are able to identify the name of public places	10	2,6,8,9,11,12,13,16,18,19	5	50
TOTAL					100

E. Validity and Reliability of Instrument

1. Validity

To get the validity of an achievement test can be used two ways[4]:

a) Totality of the 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 by items. Where the test consists of 50 questions of multiple choice questions that will be divided into two groups. They are 25 for pre-test and 25 for post-test. After the researcher did the validity of the test, the researcher concludes that 20 for pre-test that are valid and 20 for post-test that are valid.

To know the validity of each question have been refer to list r product moment with r_t in 5% significant: 0,388 and 1% significant: 0,496.

So, if $r_{count} > t_{table}$ the test is classified valid. To get the validity of the test, researcher uses the formula of product moment:

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

where:

r_{pbi} : Coefficient item validity

M_p : Mean Score of the total score

SD_t : Standard Deviation of the total score

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[4]Sudjiono, *Pengantar Statistik Pendidikan*, p.163.

p   : Presentation of the right answer of the item tested validity

q   : Presentation of the wrong answer of the item tested validity

2. Reliability

   An instrument test of the research must be reliable. A reliability test is consistent and dependable. To get the reliability of the test, Suharsimi Arikunto said that to obtain the reliability of the test, the researcher uses formula K-R 20[5]

   The formula:

$$R_{11} = \left(\frac{n}{n-1}\right)\left(\frac{St2-}{St2}\sum pq\right)$$

Where:

R_{11} : Reliability of the Instrument

N   : Total of Question

St^{2} : Variants Total

P   : Proporsi Subject who is right Answer (1)

Q   : Proporsi Subject who is wrong Answer (0)

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

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[5]H. Doughlas Brown, *Language Assesment Principles and Classroom Practices* (San Fransisco: Longman, 2003), p.120.

F. Procedures of Data Collection

To collect the data, the researcher used test. In give the test, it is divided into kinds; pre-test and post-test.

1. Pre-test

   Pre-test is a test that given before doing the treatment to the students. The function is to know the students' ability in experiment and control class before the researcher giving the treatment to experiment class. It is also used to find out the homogeneity and normality level of the sample. The researcher use some steps in give the pre-test. There are:

   a) The researcher prepared the test 20 items.

   b) The researcher distributed the paper of the test to students of experimental class and control class.

   c) The researcher explained what students to do

   d) Giving time to the students.

   e) The students answered the question.

   f) The researcher collected the test paper.

   g) The researcher checked the answer question of students.

   h) Then, the researcher found the mean score of control class and experimental class.

2. Treatment

   After giving the pre-test, the researcher gave treatment to students. The experimental class receives the treatment teach by use Word Wall and control class is teach by conventional strategy.

3. Post-test

After giving the treatment, the researcher conducted a post-test which the different test with the pre-test. Also, it used to know the different score of experimental class and control class and the effect of treatment, whether it is an effect or not. Here, the researcher use some step in give post-test. There are:

a) The researcher prepared the test 20 items.

b) The researcher distributed the paper of the test to students of experimental class and control class.

c) The researcher explained what the students to do.

d) Giving time to the students.

e) The students answered the question.

f) The researcher collected the test paper.

g) The researcher checked the answer question of students.

h) Then, the researcher found the mean score of control class and experimental class.

G. Techniques of Data Analysis

Experimental research design is being done through experimental class and control class. After experimental process, two of classes are tested with using technique of data analysis as follow:

1. Requirement Test

a) Mean Score

To know the mean score of data, the researcher used formula as follow:

$$M_x = \frac{\Sigma fx}{N}$$

Where:

M_x = mean

Σfx = total scores

N = number of classes

b) Technique of Scoring Test

The researcher used five categories to analyze the data, there are pre-test and post-test and after that looking for the total score. The table of scoring the five categories:[6]

Table.6

Categories	Scores
Very Good	90-100
Good	70-80
Enough	50-60
Low	30-40
Very Low	0-20

c) Normality Test

The researcher used normality test with using *Chi – Quadrate* formula, as follow:

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[6]Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, Seventh Ed (Jakarta: Bumi Aksara, 2007), p.218.

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

Where:

x^2= Chi-Quadrate

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

(questioner)

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

To calculate the result of chi-quadrate, it use significant level 5% (0, 05) and degree of freedom as big as total of frequency is lessened 3 (dk = k-3).

d) Homogeneity Test

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

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

Where:

n_1 = Total of the data that bigger variant

n_2 = Total of the data that smaller variant

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

To test whether variants of both homogenous samples, variants equality test, that is:

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

Here, after comparing to the F_{table}, its criterion is: If F calculating<F table, then both samples are homogeneous.

2. Hypothesis Test

The technique in analyzing the data is used by t-test, because it is aimed to examine the difference of two variables. Such examination performed both on pre-test and post-test score from the experimental class and control class. The hypothesis test will be stated as: there is a significant effect of using Word Wall on students' vocabulary mastery ($\mu_{1>}\mu_2$) and there is no significant effect of using Word Wall on students' vocabulary mastery ($\mu_{1=}\mu_2$).

From explanation above, to test hypothesis researcher uses formula as follows:

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

Where:

Tt : The value which the statistical significance

M_1 : The average score of experimental class

M_2 : The average score of control class

X_1^2 : Deviation of experimental class

X_2^2 : Deviation of control class

n_1 : Number of experimental

n_2 : Number of control

But if the data is not normal and homogenous, the formula that must be used to test hypothesis is Chi-Quadrate. The formula is as follow:

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

Where:

x^2 = Chi-Quadrate

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

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

To calculate the result of *Chi-Quadrate*, it is 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 normal.

CHAPTER IV
DATA ANALYSIS

This chapter presents research result. In this case, it discussed the effect of using Word Wall Strategy on students' vocabulary mastery. The researcher has calculated the data using pre test and post test. Applying quantitative research, the research used the formulation of T-test to test the hypothesis. Next, the researcher will describe the result based on the data that has been researched as follow:

A. The Description of Data

1. The Description of Data before Using Word Wall Strategy

a. Score of Pre Test Experimental Class

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

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

Total	2290
Highest score	85
Lowest score	40
Mean	58.96
Median	62.04
Modus	55.81
Range	45
Interval	7
Standard deviation	12.53
Variants	174.62

Based on the above table the total score of experimental class in pre-test was 2290, mean was 58.96, standard deviation was 12.53, variants was 174.62, median was 62.04, range was 45, modus was 55.81, interval was 7. The researcher got the highest score was 85 and the lowest score was 40. It can be seen on appendix 16.

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

Table.8
Frequency Distribution of Students' Score

No	Interval	Mid Point	Frequency	Percentages
1	40 – 46	43	8	20.51%
2	47 – 53	50	6	15.38%
3	54 – 60	57	11	28.20%
4	61 – 67	64	3	7.69%
5	68 – 74	71	5	12.82%
6	75 – 81	78	4	10.25%
7	82 – 88	85	2	5.12%
$I = 7$			39	100%

From the above table, the students' score in class interval between 40-46 was 8 students (20.51%), class interval between 47-53 was 6 students (15.38%), class interval between 54-60 was 11 students (28.20%), class interval between 61-67 was 3 students (7.69%), class interval between 68-74 was 5 students (12.82%), class interval between 75-81 was 4 students (10.25%) and the last class interval between 82-88 was 2 students (5.12%).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:
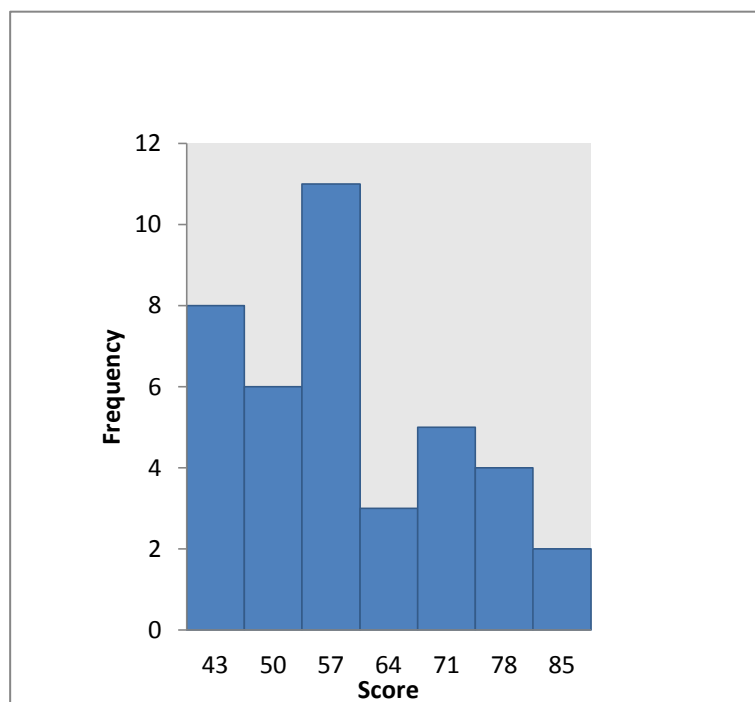
Figure 1: Description Data Pre-Test of Experimental Class

From the above histogram, the students' score 43 was 8 students, the students' score 50 was 6 students, the students' score 57 was 11 students, the students' score 64 was 3 students, the students' score 71 was 5 students, the students' score 78 was 4 students, and the last students' score 85 was 2 students.

b. Score of Pre Test Control Class

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

Table.9
The Score of Control Class in Pre-test

Total	2120
Highest score	85
Lowest score	40
Mean	54.62
Median	52.16
Modus	52.31
Range	45
Interval	7
Standard deviation	10.5
Variants	109.44

Based on the above table the total score of control class in pre-test was 2120, mean was 54.62, standard deviation was 10.5, variants was 109.44, median was 52.16, range was 45, modus was 52.31, interval was 7. The researcher got the highest score was 85 and the lowest score was 40. It can be seen on appendix 16.

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

Table.10
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	40 – 46	43	8	20.51%
2	47 – 53	50	13	33.33%
3	54 – 60	57	12	30.76%
4	61 – 67	64	1	2.56%
5	68 – 74	71	1	2.56%
6	75 – 81	78	3	7.69%
7	82 – 88	85	1	2.56%
$I = 7$			39	100%

From the above table, the students' score in class interval between 40-46 was 8 students (20.51%), class interval between 47-53 was 13 students (33.33%), class interval between 54-60 was 12 students (30.76%), class interval between 61-67 was 1 students (2.56%), class interval between 68-74 was 1 students (2.56%), class interval between 75-81 was 3 students (7.69%) and the last class interval between 82-88 was 1 students (2.56%).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:
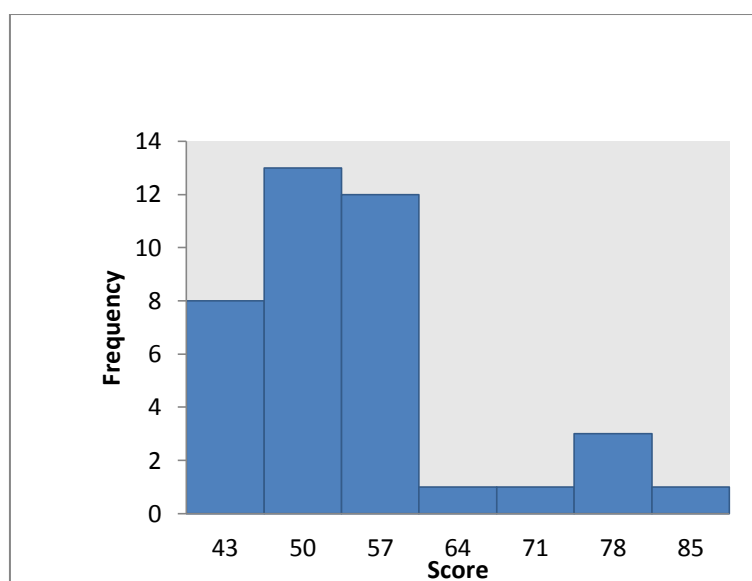
Figure 2: Description Data Pre-Test of Control Class

From the above histogram, the students' score 43 was 8 students, the students' score 50 was 13 students, the students' score 57 was 12 students, the students' score 64 was 1 students, the students' score 71 was 1 students, the students' score 78 was 3 students, and the last students' score 85 was 1 students.

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

Based on above histogram, researcher compared between description data pre-test of experimental class and description data of control class on the following figure:
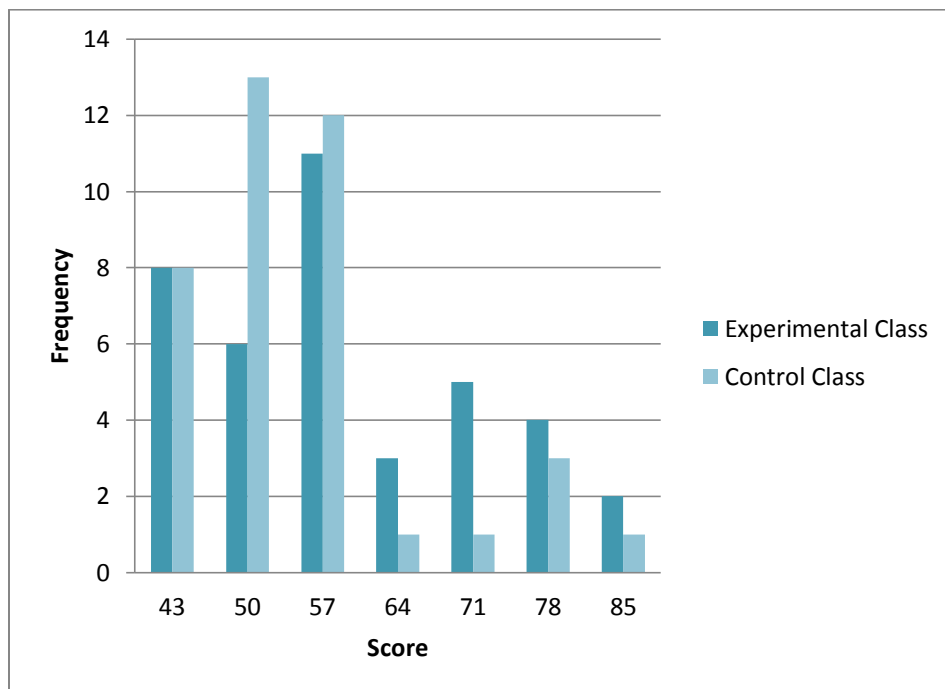
Figure 3 : Description Data Pre-Test of Experimental Class and Control Class

From the histogram above, it can be concluded that frequency of students' score in experimental class, the students' score 43 was 8 students, the students' score 50 was 6 students, the students' score 57 was 11 students, the students' score 64 was 3 students, the students' score 71 was 5 students, the students' score 78 was 4 students, and the last students' score 85 was 2 students. In control class, the students'

score 43 was 8 students, the students' score 50 was 13 students, the students' score 57 was 12 students, the students' score 64 was 1 students, the students' score 71 was 1 students, the students' score 78 was 3 students, and the last students' score 85 was 1 students.

2. **The Description of Data After Using Word Wall Strategy**

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

   In post-test of experimental class, the researcher calculated the result that had been gotten by the students in answering the question (test) after the researcher did the treatment by using Word Wall Strategy. The score of post-test experimental class can be seen in the following table:

Table.11
The Score of Experimental Class in Post-test

Total	2795
Highest score	95
Lowest score	50
Mean	72.18
Median	71.41
Modus	65.46
Range	45
Interval	7
Standard deviation	14.91
Variants	116.88

Based on the above table the total score of experiment class in post-test was 2795, mean was 72.18 standard deviation was 14.91, variants was 116.88, median was 71.41, range was 45, modus was

65.46, interval was 7. The researcher got the highest score was 95 and the lowest score was 50. It can be seen on appendix 17.

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

Table.12
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	50 – 56	53	6	15.38%
2	57 – 63	60	7	17.94%
3	64 – 70	67	11	28.20%
4	71 – 77	74	1	2.56%
5	78 – 84	81	3	7.69%
6	85 – 91	88	3	7.69%
7	92 – 98	95	8	20.51%
$i = 7$			39	100%

From the above table, the students' score in class interval between 50-56 was 6 students (15.38%), class interval between 57-63was 7 students (17.94%), class interval between 64-70was 11 students (28.20%), class interval between 71-77 was 1 students (2.56%), class interval between 78-84was 3 students (7.69%), class interval between 85-91 was 3 students (7.69%), and the last class interval between 92-98was 8 students (20.51%).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:
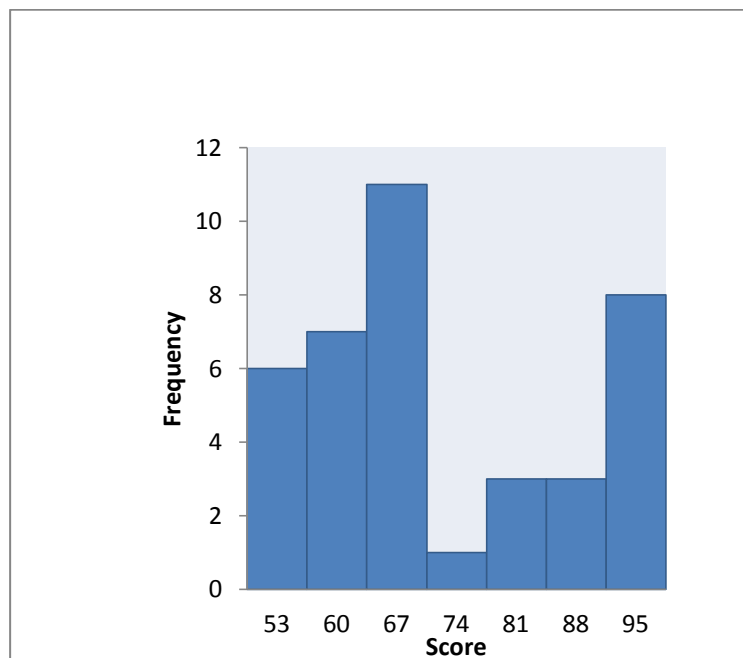
Figure 4: Description Data Post-Test of Experimental Class

From the above histogram, the students' score 53 was 6 students, the students' score 60 was 7 students, the students' score 67 was 11 students, the students' score 74 was 1 students, the students' score 81 was 3 students, the students' score 88 was 3 students, and the last the students' score 95 was 8 students.

b. Score of Post-Test Control Class

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

Table.13
The Score of Control Class in Post-test

Total	2535
Highest score	95
Lowest score	50
Mean	65.32
Median	62.24
Modus	59.44
Range	45
Interval	7
Standard deviation	18.06
Variants	127.63

Based on the above table the total score of control class in post-test was 2535, mean was 65.32, standard deviation was 18.06, variants was 127.63, median was 62.24, range was 45, modus was 59.44, interval was 7. The researcher got the highest score was 95 and the lowest score was 50 It can be seen on appendix 17.

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

Table.14
Frequency Distribution of Students' Score

No	Interval	Mid-Point	Frequency	Percentages
1	50 – 56	53	8	20.51%
2	57 – 63	60	14	35.89%
3	64 – 70	67	8	20.51%
4	71 – 77	74	2	5.12%
5	78 – 84	81	3	7.69%
6	85 – 91	88	3	7.69%
7	92 – 98	95	1	2.56%
$i = 7$			39	100%

From the table above, the students' score in class interval between 50-56 was 8 students (20.51%), class interval between 57-63 was 14 students (35.89%), class interval between 64-70 was 8 students (20.51%), class interval between 71-77 was 2 students (5.12%), class interval between 78-84 was 3 students (7.69%), class interval between 85-91was 3 students (7.69%), and the last class interval between 92-98 was 1 students (2.56%).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:
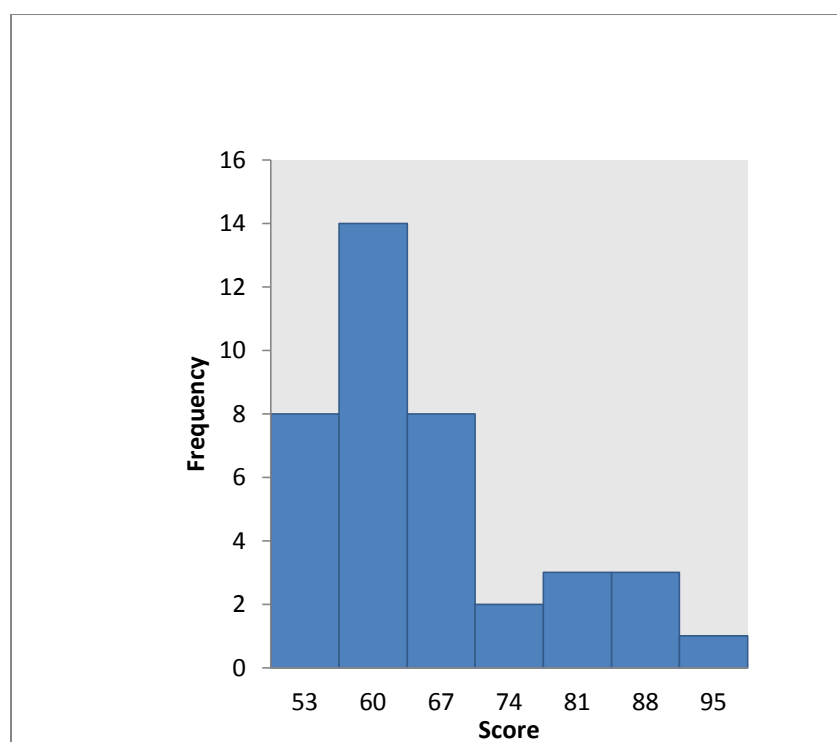
Figure 5: Description Data Post-Test of Control Class

From the above histogram, the students' score 53 was 8 students, the students' score 60 was 14 students, the students' score 67 was 8 students, the students' score 74 was 2 students, the students'

score 81 was3 students, the students' score 88 was3 students, and the last the students' score 95 was 1 students.

c. **The Comparison between Description Data Post-Test of Experimental Classand Control Class**

Based on above diagram, researcher compared between description data post-test of experimental class and description data of control class on the following figure:
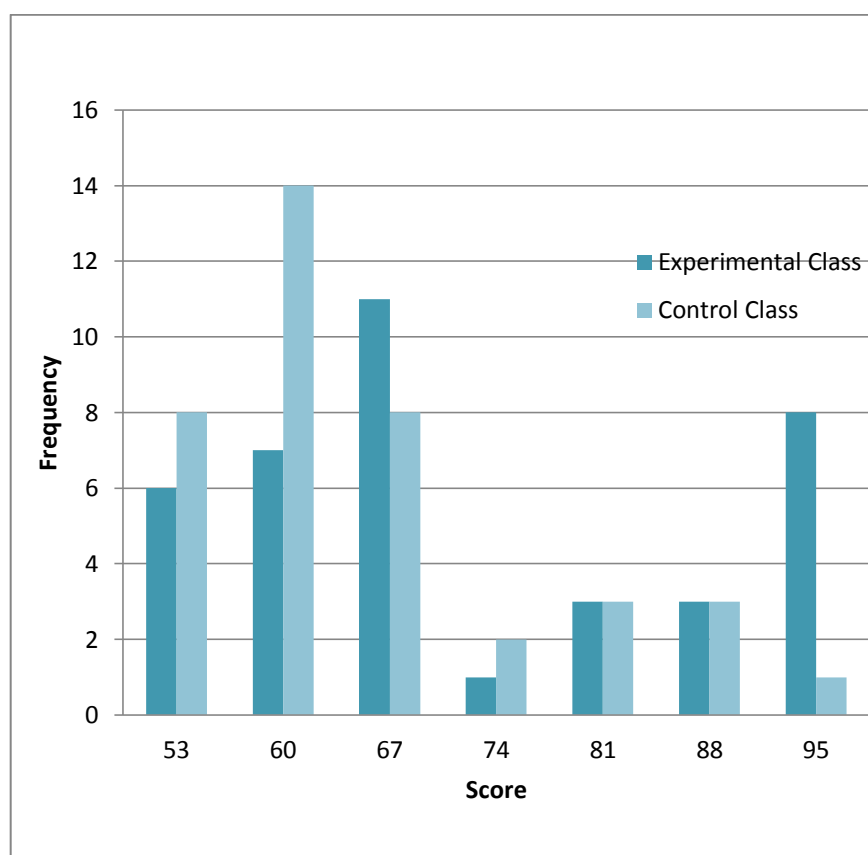
Figure 6 : Description Data Post-Test of Experimental Class and Control Class

From the above histogram, it can be concluded that frequency of students' score in experimental class, the students' score 53 was 6

students, the students' score 60 was 7 students, the students' score 67 was 11 students, the students' score 74 was 1 students, the students' score 81 was 3 students, the students' score 88 was 3 students, and the last the students' score 95 was 8 students. In control class, the students' score 53 was 8 students, the students' score 60 was 14 students, the students' score 67 was 8 students, the students' score 74 was 2 students, the students' score 81 was 3 students, the students' score 88 was 3 students, and the last the students' score 95 was 1 students.

B. Technique of Data Analysis

1. Requirement Test

a. Normality and Homogeneity Pre-Test

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

Table.15
Normality and Homogeneity in Pre-Test

Class	Normality Test		Homogeneity Test	
	x_{count}	x_{table}	f_{count}	f_{table}
Experiment Class	7.28	9.488	1.59<2.21	
Control Class	7.19	9.488		

Based on the above table researcher calculation, the score of experimental class Lo = 7.28< Lt = 9.488 with n = 39and control class Lo = 7.19< Lt = 9.488 with n = 39, and real level α 0.05. Cause Lo< Lt in the both class. So, H_a was accepted. It

means that experimental class and control class were distributed normal. It can be seen in appendix 18 and 19.

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

The coefficient of F_{count}= 1.59 was compared with F_{table}. Where F_{table} was determined at real α 0.05, and the same numerator dk = 39. So, by using the list of critical value at F distribution is got $F_{0.05}$ = 2.21. It showed that F_{count} 1.59<F_{table}2.21. So, the researcher concluded that the variant from the data of the Students' vocabulary mastery at MTs Negeri 2 Padangsidimpuan by experimental class and control class was homogenous. The calculation can be seen on the appendix 19.

b. **Normality and Homogeneity Post-Test**

1) **Normality of Experimental Class and Control Class in Post-Test**

Table.16
Normality and Homogeneity in Post-Test

Class	Normality Test		Homogeneity Test	
	x_{count}	x_{table}	f_{count}	f_{table}
Experimental Class	3.51	9.488	1.09<2.27	
Control Class	1.75	9.488		

Based on the table above researcher calculation, the score of experiment class Lo = 3.51< Lt = 9.488 with n = 39 and Control Class Lo = 1.75< Lt = 9.488 with n = 39, and real level α 0.05. Cause Lo< Lt in the both class. So, H_a was accepted. It

means that experimental class and Control Class were distributed normal. It can be seen in appendix 20 and 22.

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

The coefficient of F_{count}= 1.09 was compared with F_{table}. Where F_{table} was determined at real α 0.05, and the same numerator dk = 39. So, by using the list of critical value at F distribution is got $F_{0.05}$= 2.27. It showed that F_{count} 1.09<F_{table}2.27. So, the researcher concluded that the variant from the data of the students vocabulary mastery at MTs Negeri 2 Padangsidimpuan by experimental class and Control Class was homogenous. The calculation can be seen on the appendix 22.

2. **Hypothesis Test**

After calculating the data of post-test, researcher found that post-test result of experimental class and Control Class is normal and homogenous. Based on the result, researcher used parametric test by using T-test to analyze the hypothesis. Hypothesis alternative (H_a) of the research was "There was the significant effect of using Word Wall Media on students' vocabulary mastery at grade VII MTs Negeri 2 Padangsidimpuan". The calculation can be seen on the appendix 24.

Table.17
Result of T-test from the Both Averages

Pre-test		Post-test	
t_{count}	t_{table}	t_{count}	t_{table}
1.24	2.617	14.2	2.617

$$H_a : \mu_1 \neq \mu_2$$

Where:

$H_a : \mu_1 \neq \mu_2$ " There was the significant effect of using Word Wall

Strategy on students' vocabulary mastery at grade VII MTs Negeri

2 Padangsidimpuan".

Based on researcher calculation, researcher found that t_{count} 14.2

while t_{table}2.617with opportunity $(1 - \alpha) = 1 - 5\% = 95\%$ and dk $= n_1 + n_2 -$

2 = 39+ 39– 2 = 76. Cause $t_{count} > t_{table}$ (14.2>2.617), it means that

hypothesis H_a was accepted and H_0 was rejected. So, there was the

significant effect of using Word Wall Strategy on Students' Vocabulary

mastery. In this case, the mean score of experimental class by using Word

Wall Strategy was 72.18 and mean score of Control Class was 65.32. The

calculation can be seen on the appendix 23 and 24.

C. Discussion

Based on the related findings, the researcher discussed the result of this

research and compared with the related findings. The first is Ridho Istianto[1]

showed that word wall strategy can improve students' vocabulary mastery,

then Decy Anggriani[2] who also concluded that word wall strategy can improve

students' vocabulary mastery. Moreover, Shallyntang Ditya Pradikasari,

Zakiyah Tasnim and I Putu Sukmaantara[3] who also found that word wall

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[1] Ridho Istianto, "Improving Students' Vocabulary Mastery Through Word Wall," 2013, http://media.neliti.com.

[2] Decy Anggriani, "Improving Students ' Vocabulary Achievement Through Word Walls Strategy," 2013, https://jurnal.unimed.ac.id.

[3] I Putu Sukmaantara Shallyntang Ditya Pradikasari, Zakiyah Tasnim, "The Effect of Using Word Wall on The Eighth Grade Students â€™ Vocabulary Achievement at SMPN 1 Jember in 2015/2016 Academic Year," 2016, https://jurnal.unej.ac.id.

strategy can improve students' vocabulary mastery and Rohdearni Wati Sipayung[4] in her research shows that there was the significant effect of word wall strategy to students' vocabulary achievement. Another previous study Muhammad Nuh[5] word wall strategy can improve students' vocabulary mastery. The last, Tracy E. Dennis[6] states that word wall is a teaching tool used to enhance literacy by displaying a collection of common vocabulary/sight words. It can be concluded that word wall can increase students' vocabulary.

In summary, the researcher by using Word Wall strategy found the mean score of experimental class was 72.18 and control class 65.32. It means the result and hypothesis testing showed that Word Wall strategy had the effect, and the hypothesis alternative (H_a) was accepted and hypothesis zero (H_0) was rejected. It was indicated that score of experimental class was bigger than control class (72.18>65.32), and also indicated $t_o>t_t$(14.2>2.617).

Based on the above explanation, the researcher concluded that this research showed there was an effect of using word wall strategy on students' vocabulary mastery and helped prove what had been proven before.

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[4] Rohdearni Wati Sipayung, "The Effect of Word Wall Strategy on Students ' Vocabulary Achievement at SMP Negeri 5 Pematangsiantar in the Academic Year 2018 / 2019" I, no. 3 (2019): 251–63, https://www.researchgate.net/publication/329968485_The_Effect_of_Word_Wall_Strategy_on_Students'_Vocabulary_Achievement_at_SMP_Negeri_5_Pematangsiantar_in_the_Academic_Year_20182019.

[5] Muhammad Nuh, "The Effectiveness of Word Wall Media in Improving Students' Vocabulary Mastery (Quasi-Experimental Study in the 7th Grade of SMPN 46 Bandung).," 2017, 73, http://digilib.uinsgd.ac.id/5456/.

[6] Tracy E. Dennis, "Interactive Word Wall (English Language Learner)," 2013, p.10, http://l.cdn.edl.io.

D. Threats of the Research

The researcher found the threats of the research as follows:

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

2. The students were noisy while the learning process. They were not concentrating in following the learning process. Some of them talked to their friends and some of them did something outside the teacher's rule. Clearly, it made them can't get the teacher's explanation well and gave the impact to the post-test answer.

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

CHAPTER V

CONCLUSION AND SUGGESTION

A. Conclusion

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

1. Students' vocabulary mastery at grade VII MTs Negeri 2 Padangsidimpuan before using Word Wall Strategy were enough. It can be seen from the students' mean score of pre-test was 58.96 in experimental class and 54.62 in control class.

2. The students' ability of the grade VII students at MTs Negeri 2 Padangsidimpuan in vocabulary mastery by using Word Wall Strategy had higher score. It can be seen from the students' score of post-test,the higher score of post-test using Word Wall Strategy (experiment class) is 95 and the lowest score is 50 and the mean score rised became 72.18.

3. There was the effect of using Word Wall Strategy on students' vocabulary mastery at grade VII MTs Negeri 2 Padangsidimpuan, because mean score of experimental class in post test was 72.18 , it was bigger/higher than control class (72.18>65.32) and proven with t_{count} was higher than t_{table} (14.2>2.61). So, the researcher concluded that Word Wall Strategy gave an effect on students' vocabulary mastery and the alternative hypothesis (H_a) was accepted.

B. Suggestion

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

1. The head master of MTs Negeri 2 Padangsidimpuan to motivated the teacher, especially English teacher to teach as well as possible by using apporiate strategy for every skill like teaching vocabulary mastery by using Word Wall Strategy.

2. The English teacher, the researcher suggests as an English teacher were hoped to use appropriate strategy to teach or explain English subject to the students so that the students can enjoy and increase their skill in learning English.

3. Other researcher, the researcher hopes that the others researchers who want to conduct a research related to this research to find the others influence of these strategies deeply.

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CURRICULUM VITAE

A. Identity

Name	: Rahmayani Ritonga
NIM	: 15 203 00100
Place and Birthday	: Rantau Prapat, January 09th, 1997
Gender	: Female
Religion	: Islam
Address	: Jalan Sei Tawar, Gg. Subur, Rantau Prapat

B. Parent

1. Father's name : Samsul Bahri Ritonga

2. Mother's name : Lili Nasution

C. Educational Background

1. Elementary School : SD N 118240 Rantau Prapat   (2009)

2. Junior High School : SMP N 2 Rantau Prapat   (2012)

3. Senior High School : SMA N 3 Rantau Prapat   (2015)

4. College : IAIN Padangsidimpuan   (2019)

RENCANA PELAKSANAAN PEMBELAJARAN

(RPP)

EXPERIMENT CLASS

Sekolah   **: MTs Negeri 2 Padangsidimpuan**

Mata Pelajaran   **: Bahasa Inggris**

Kelas/Semester   **: VII/Genap**

Tema   **: Nama benda di sekolah dan bangunan publik**

Alokasi Waktu   **: 2 x 40 menit**

A. Kompetensi Inti

- **KI-1 dan KI-2: Menghayati dan mengamalkan** ajaran agama yang dianutnya. **Menghayati dan mengamalkan** perilaku jujur, disiplin, santun, peduli (gotong royong, kerjasama, toleran, damai), bertanggung jawab, responsif, dan pro-aktif dalam berinteraksi secara efektif sesuai dengan perkembangan anak di lingkungan, keluarga, sekolah, dan masyarakat

- **KI 3:** Memahami, menerapkan, dan menganalisis pengetahuan faktual, konseptual, prosedural, dan metakognitif berdasarkan rasa ingin tahunya tentang ilmu pengetahuan, teknologi, seni, budaya, dan humaniora dengan wawasan kemanusiaan, kebangsaan, kenegaraan, dan peradaban terkait penyebab fenomena dan kejadian, serta menerapkan pengetahuan prosedural pada bidang kajian yang spesifik

- **KI4:** Mengolah, menalar, dan menyaji dalam ranah konkret dan ranah abstrak terkait dengan pengembangan dari yang dipelajarinya di sekolah secara mandiri, bertindak secara efektif dan kreatif, serta mampu menggunakan metode sesuai kaidah keilmuan

B. Kompetensi Dasar dan Indikator Pencapaian Kompetensi

Kompetensi Dasar	Indikator
3.4 Mengidentifikasi fungsi social, struktur teks, dan unsure kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait nama benda dan bangunan public sesuai konteks penggunaannya.	3.4.1 Mengidentifikasi ungkapan yang digunakan untuk menyebutkan nama benda dan bangunan public yang dekat dengan kehidupan peserta didik sehari-hari 3.4.2 Memahami penggunaan plural dan singular

C. **Tujuan Pembelajaran**

1. Mampu menyebutkan nama-nama benda yang ada di sekitar sekolah dan nama-nama tempat umum.

2. Mampu mengklasifikasikan nama-nama benda yang ada di sekitar sekolah dan nama-nama tempat umum sesuai jenisnya.

3. Mampu mendefinisikan nama-nama benda yang ada di sekitar sekolah dan nama-nama tempat umum.

D. **Materi Pembelajaran**

1. **The name of things in the school**
2. **The name of public places**

E. **Metode Pembelajaran**

Pendekatan : Scientific Learning

Model Pembelajaran : Problem Based Learning

Teknik : Diskusi, tanya jawab, penugasan

F. **Media Pembelajaran**

1. **Media dan Alat Pembelajaran**

Worksheet atau lembar kerja (siswa), spidol, papan tulis, Word Wall.

G. **Langkah-Langkah Pembelajaran**

1) Kegiatan Pendahuluan

Guru	Siswa
- Memberi salam kepada siswa	- Membalas salam guru
- Mengajak siswa berdoa	- Berdoa bersama dengan guru
- Mengecek kehadiran siswa dan menyiapkan fisik dan psikis peserta didik dalam mengawali kegiatan pembelajaran	- Menyatakan kehadirannya dengan berkata, "Present Miss."
- Menanyakan kembali materi pelajaran yang sudah dipelajari sebelumnya dan mereview kembali secara singkat. - Guru melibatkan pelajaran yang akan dieplajari siswa sesuai dengan topic yang akan dibahas.	- Menjawab pertanyaan yang diajukan oleh guru dan mereview kembali secara singkat. - Siswa mengingat dan menyebutkan sesuai topik

2) Kegiatan Inti

Guru	Siswa
a. Mengamati (Observing)	
- Guru menjelaskan definisi, tipe, dan unsur kebahasaan tentang kosakata yang akan dipelajari siswa dan penggunaan media dinding kata	- Mendengarkan dan menyimak penjelasan guru
- Menyajikan table dinding kata dan menempelkannya di depan papan tulis	- Menyimak atau memahami penjelasan yang diberikan oleh guru
b. Mempertanyakan (Questioning)	
- Siswa diarahkan untuk bertanya tentang apa yang mereka amati dengan memberikan pertanyaan pancingan agar siswa mau bertanya	- Siswa bertanya tentang apa yang mereka amati
c. Mengeksplorasi (Exploring) / Data collection	
- Meminta siswa untuk menyebutkan nama-nama benda yang ada disekitar sekolah - Meminta siswa menyebutkan nama-nama tempat umum	- Menjawab pertanyaan yang diberikan oleh guru dan menyebutkan nya satu per satu dan sesuai dengan cara membaca nya
- Meminta siswa untuk menyebutkan kosakata dan maju ke depan untuk menuliskannya - Meminta para siswa untuk sama-sama membacakan kosakata yang telah dituliskan di papan tulis	- Siswa maju ke depan kelas satu persatu
d. Mengasosiasi (Associating)	
- Meminta siswa untuk menuliskan kosakata yang ada di papan tulis ke dalam buku catatan	- Siswa membuat catatan

e. **Mengkomunikasikan (Communicating)**	
- Meminta siswa untuk membentuk kelompok dan berdiskusi	- Siswa membentuk kelompok
- Meminta siswa mengklasifikasikan nama benda dan tempat umum yang telah disediakan pada table dinding kata	- Siswa melakukan diskusi dan mencari jawaban yang sesuai dengan jenis kosakata
- Memberikan skor kepada kelompok yang telah mengklasifikasikan kosakata dengan benar	- Guru dan siswa sama-sama mengoreksi table daftar dinding kata

3) Kegiatan Penutup

Guru	Siswa
- Memberi panduan menyimpulkan hasil pembelajaran - Mengkonfirmasi/menyimpulkan hasilpembelajaran	- Dengan panduan guru,siswa diminta untuk menyimpulkan hasil pembelajaran - Mendengarkan guru dalam menyimpulkan pelajaran
- meminta siswa menyampaikan pendapat atau perasaan atas pembelajaran yang dilakukan	- menyampaikan pendapat atau perasaan atas pembelajaran yang dilakukan

H. Penilaian

Indicator	Teknik Penilaian	Bentuk Instrumen	Instrument soal
Mengklasifikasikan nama-nama benda yang ada di sekitar sekolah. Mengklasifikasikan nama-nama tempat-tempat umum.	Tes tertulis	Multiple Choice	Memilih jawaban yang sesuai dengan soal

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

Padangsidimpuan,   2019

Mengetahui

Validator   Peneliti

Nila Suaidah Lubis, S. Pd   **Rahmayani Ritonga**

NIM. 1520300100

RENCANA PELAKSANAAN PEMBELAJARAN

(RPP)

CONTROL CLASS

Sekolah	**: MTs Negeri 2 Padangsidimpuan**
Mata Pelajaran	**: Bahasa Inggris**
Kelas/Semester	**: VII/Genap**
Tema	**: Nama benda di sekolah dan bangunan publik**
Alokasi Waktu	**: 2 x 40 menit**

I. Kompetensi Inti

- **KI-1 dan KI-2: Menghayati dan mengamalkan** ajaran agama yang dianutnya. **Menghayati dan mengamalkan** perilaku jujur, disiplin, santun, peduli (gotong royong, kerjasama, toleran, damai), bertanggung jawab, responsif, dan pro-aktif dalam berinteraksi secara efektif sesuai dengan perkembangan anak di lingkungan, keluarga, sekolah, dan masyarakat

- **KI 3:** Memahami, menerapkan, dan menganalisis pengetahuan faktual, konseptual, prosedural, dan metakognitif berdasarkan rasa ingin tahunya tentang ilmu pengetahuan, teknologi, seni, budaya, dan humaniora dengan wawasan kemanusiaan, kebangsaan, kenegaraan, dan peradaban terkait penyebab fenomena dan kejadian, serta menerapkan pengetahuan prosedural pada bidang kajian yang spesifik

- **KI4:** Mengolah, menalar, dan menyaji dalam ranah konkret dan ranah abstrak terkait dengan pengembangan dari yang dipelajarinya di sekolah secara mandiri, bertindak secara efektif dan kreatif, serta mampu menggunakan metode sesuai kaidah keilmuan

J. Kompetensi Dasar dan Indikator Pencapaian Kompetensi

Kompetensi Dasar	Indikator
3.5 Mengidentifikasi fungsi social, struktur teks, dan unsure kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait nama benda dan bangunan public sesuai konteks penggunaannya.	3.5.1 Mengidentifikasi ungkapan yang digunakan untuk menyebutkan nama benda dan bangunan public yang dekat dengan kehidupan peserta didik sehari-hari 3.5.2 Memahami penggunaan plural dan singular

K. Tujuan Pembelajaran

4. Mampu menyebutkan nama-nama benda yang ada di sekitar sekolah dan nama-nama tempat umum.

5. Mampu mengklasifikasikan nama-nama benda yang ada di sekitar sekolah dan nama-nama tempat umum sesuai jenisnya.

6. Mampu mendefinisikan nama-nama benda yang ada di sekitar sekolah dan nama-nama tempat umum.

L. Materi Pembelajaran

    3. The name of things in the school

    4. The name of public places

M. Metode Pembelajaran

   - Lecturing method (conventional strategy)

N. Media Pembelajaran

    2. Media dan Alat Pembelajaran

Papan tulis dan spidol.

O. Langkah-Langkah Pembelajaran

4) Kegiatan Pendahuluan

Guru	Siswa
- Memberi salam kepada siswa	- Membalas salam guru
- Mengajak siswa berdoa	- Berdoa bersama dengan guru
- Mengecek kehadiran siswa dan menyiapkan fisik dan psikis peserta didik dalam mengawali kegiatan pembelajaran	- Menyatakan kehadirannya dengan berkata, "Present Miss."
- Menanyakan kembali materi pelajaran yang sudah dipelajari sebelumnya dan mereview kembali secara singkat. - Guru melibatkan pelajaran yang akan dieplajari siswa sesuai dengan topic yang akan dibahas.	- Menjawab pertanyaan yang diajukan oleh guru dan mereview kembali secara singkat. - Siswa mengingat dan menyebutkan sesuai topik

5) Kegiatan Inti

Guru	Siswa
a. **Mengamati (Observing)**	
- Guru menjelaskan definisi, tipe, dan unsur kebahasaan tentang kosakata yang akan dipelajari siswa	- Mendengarkan dan menyimak penjelasan guru
- Menuliskan beberapa kosakata sesuai dengan jenis kosakata dan membuat contoh yang dekat dengan kehidupan sehari-hari peserta didik	- Menyimak atau memahami penjelasan yang diberikan oleh guru
b. **Mempertanyakan (Questioning)**	
- Siswa diarahkan untuk bertanya tentang apa yang mereka amati dengan memberikan pertanyaan pancingan agar siswa mau bertanya	- Siswa bertanya tentang apa yang mereka amati
c. **Mengeksplorasi (Exploring) / Data collection**	
- Meminta siswa untuk menyebutkan nama-nama benda yang ada disekitar sekolah - Meminta siswa menyebutkan nama-nama tempat umum	- Menjawab pertanyaan yang diberikan oleh guru dan menyebutkan nya satu per satu dan sesuai dengan cara membaca nya
d. **Mengasosiasi (Associating)**	
- Meminta siswa untuk menuliskan kosakata sebanyak-banyak nya di dalam buku catatan dan menamainya	- Siswa membuat catatan
e. **Mengkomunikasikan (Communicating)**	
- Meminta beberapa siswa untuk membacakan kosakata yang telah ditulis siswa ke dalam buku catatan	- Siswa membacakan dan menyebutkan artinya
- Memberikan latihan kepada siswa untuk menghafal kosakata	- Siswa menghafal kosakata dan maju ke depan

6) Kegiatan Penutup

Guru	Siswa
- Memberi panduan menyimpulkan hasil pembelajaran - Mengkonfirmasi/menyimpulkan hasilpembelajaran	- Dengan panduan guru,siswa diminta untuk menyimpulkan hasil pembelajaran - Mendengarkan guru dalam menyimpulkan pelajaran
- meminta siswa menyampaikan pendapat atau perasaan atas pembelajaran yang dilakukan	- menyampaikan pendapat atau perasaan atas pembelajaran yang dilakukan

P. Penilaian

Indicator	Teknik Penilaian	Bentuk Instrumen	Instrument soal
Mengklasifikasikan nama-nama benda yang ada di sekitar sekolah. Mengklasifikasikan nama-nama tempat-tempat umum.	Tes tertulis	Multiple Choice	Memilih jawaban yang sesuai dengan soal

4. Skor maksimal keseluruhan adalah 100.
5. Jawaban benar diberi skor 5 dan jawaban salah diberi skor 0. Jumlah skor keseluruhan 5 x 20 = 100.
6. Nilai maksimal $= \frac{jumlah\ jawaban\ yang\ benar}{jumlah\ soal}$

Padangsidimpuan,   2019

Mengetahui

Validator   Peneliti

Nila Suaidah Lubis, S. Pd   **Rahmayani Ritonga**

                                                          NIM. 1520300100

Appendix 3

INSTRUMENT FOR PRE TEST

Answer the Question below by giving cross (X) in the correct answer!

1. Mr. Alwi is a Doctor. He works in ….
   a. Hotel   c. Hospital
   b. School   d. Mall

2. My family will eat in a new ….
   a. School   c. Zoo
   b. House   d. Restaurant

3. We can see many animals in the ….
   a. Swimming pool c. Market
   b. Zoo   d. House

4. The students sit on the ….
   a. Table   c. Chairs
   b. Cupboard   d. Wall

5. The teacher writes on the ….
   a. Board   c. Window
   b. Floor   d. Door

6. I am reading a ….
   a. Book   c. Ruler
   b. Eraser   d. Chair

7. This is a thing in the classroom, except ….
   a. Chair   c. Pencil
   b. Table   d. Knife

8. My father goes to …. Today to work.
   a. Shop   c. House
   b. Office   d. Swimming pool

9. I will go to …. With my friends to meet my teacher.
   a. School   c. Hospital
   b. Market   d. Bank

10. Chair, whiteboard, and table are things in the ….
    a. Bathroom   c. Classroom
    b. Kitchen   d. Bedroom

11. There is a …. in the classroom.

   a. Whiteboard   c. Blanket

   b. Stove   d. Knife

12. Something that you can delete your post ….

   a. Eraser   c. Cupboard

   b. Pen   d. Map

13. Moslems pray in the ….

   a. Mosque   c. Church

   b. Palace   d. Prison

14. A place in the school where all of the teachers collect there, is ….

   a. Library   c. Toilet

   b. Teacher's room   d. School yard

15. The passenger, ticket, and visa are the words that often we find at the ….

   a. Office   c. Airport

   b. School   d. Bank

16. Where do people go to send the letter ….

   a. Beach   c. Zoo

   b. Post office   d. Station

17. My mom always buys vegetables in the ….

   a. Bank   c. Market

   b. School   d. Office

18. Intan is sick and her mother takes her to the ….

   a. Bank   c. Museum

   b. Hospital   d. Hotel

19. Drawing or plan of (part of) the earth's surface, showing countries, towns, rivers, etc.

   a. Laboratory   c. Map

   b. Cafeteria   d. Field

20. Piece of wood, used for closing the entrance to a building, room, etc.

   a. Window   c. Curtain

   b. Door   d. Trash Box

Appendix 4

INSTRUMENT FOR POST TEST

Answer the Question below by giving cross (X) in the correct answer!

1. …. was full of activity; every student was busy.
   a. The park   c. The garden
   b. The classroom   d. The kitchen
2. Mrs. Alma went to the …. to buy some medicine.
   a. Emporium   c. Dentist
   b. Nursery   d. Pharmacy
3. There are different categories of books in ….
   a. The schoolyard   c. The canteen
   b. The library   d. The kitchen
4. Students are not allowed to use a …. in this exam.
   a. Pen   c. Ballpoint
   b. Pencil   d. Calculator
5. She stapled the papers together with the ….
   a. Pencil sharpener c. Stapler
   b. Paper   d. Colored pencil
6. A religious place of Christian worship.
   a. Palace   c. Church
   b. Museum   d. Café
7. We use this tool to cut the paper or card.
   a. Scissors   c. Book
   b. Pen   d. Ruler
8. A place that provides lodging and usually meals and other service for travelers.
   a. School   c. Hotel
   b. Bank   d. Museum
9. A large, often enclosed shopping complex containing various stores, business, and restaurants.
   a. Mall   c. Motel
   b. Library   d. Park
10. Don't drink or eat in ….
    a. The schoolyard   c. The computer room
    b. The park   d. The canteen

11. A place where objects of historical, artistic, or scientific interest in rooms usually having direct access to an open parking area.
    a. Hospital   c. Museum
    b. Bank   d. Jail
12. I see prisoners in the ….
    a. Museum   c. Prison

b. Library   d. Park

13. My sister wants to send her student some postcard. She goes to the ….
    a. Book shop   c. Post office
    b. Market   d. School

14. This is the most common writing utensil used in classroom, made of wood, graphite, and a rubber eraser.
    a. Pencil   c. Computer
    b. Bag   d. Ruler

15. Most classes use published books containing curriculum material that are known as ….
    a. Paper   c. Textbook
    b. Pencil case   d. Notebook

16. A place where you can do exercises to keep fit.
    a. Gym   c. Cinema
    b. Hospital   d. Movie

17. Room or building used for scientific experiments
    a. Student Health Units   c. Computer Lab
    b. Laboratory   d. Field

18. Building used in the worship of a god or gods, especially in the Hindu and Buddhist religions.
    a. Mosque   c. Temple
    b. Church   d. Market

19. Public garden or area of ground for public use.
    a. Prison   c. Park
    b. Market   d. Swimming Pool

20. Made of metal object, also makes a ringing sound when struck.
    a. Ball   c. Fan
    b. Bell   d. Air Conditioner

Appendix 5

KEY ANSWER

The Key Answer of Pre Test

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

The Key Answer of Post Test

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

Appendix 6

Validity of Pre Test

NO	NAMA	Item																									Xt	Xt^2
		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		
1	Nadya	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	21	441
2	May Zahro Tambunan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	23	529
3	Hasanatul Balqiah Hrp	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25	625
4	Sopiah Ulpah Nst	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	23	529
5	Nur Hanipah	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	23	529
6	Gusnur Alimah	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	23	529
7	Putri Nandini Nst	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	24	576
8	Teguh Imbang Darli	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	21	441
9	Umar Bahrin	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	23	529
10	Salsabila Hsb	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	23	529
11	Annisa Fitri Hsb	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
12	Silva Fadillah Hsb	0	1	1	1	0	1	0	1	0	1	1	1	1	0	1	0	0	1	0	1	0	1	1	0	0	14	196
13	Lira Aulia	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	0	0	1	1	0	17	289
14	Wardah Pajirah Hrp	0	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	0	0	1	1	0	1	0	1	18	324
15	Nur Afifah	0	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	0	1	1	0	1	1	0	1	18	324
16	Seva Anela Budianto	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	0	1	1	1	0	1	19	361
17	Ropika Rahayu	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	22	484
18	Oktafina Syahfitri	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	23	529
19	Fahmi Salim Azis	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	22	484
20	Riska Andriani	1	1	0	1	1	0	1	0	1	1	0	1	1	1	1	0	1	1	0	1	1	1	0	1	1	18	324
21	Sahara Annisa Nur	1	0	1	0	1	0	1	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	19	361
22	Rafly Mushaleh Hrp	1	0	1	0	1	0	1	0	1	1	0	1	1	0	1	0	1	1	1	1	0	1	1	1	1	18	324
23	Muhammad Wahid	1	0	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	1	0	1	1	0	1	10	100
24	Ihsan Marwadi	1	0	0	0	1	0	0	1	0	1	0	1	1	1	1	0	1	1	1	1	1	0	0	0	1	15	225
25	Wildan Harahap	1	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	19	361
	N = 25	21	19	22	19	21	18	21	19	16	23	19	21	23	12	23	4	20	21	17	22	21	22	22	16	22	483	9947
	p	0,8	0,8	0,9	0,8	0,8	0,7	0,8	0,8	0,6	0,9	0,8	0,8	0,9	0,5	0,9	0,2	0,8	0,8	0,7	0,9	0,8	0,9	0,9	0,6	0,9		
	q	0,2	0,2	0,1	0,2	0,2	0,3	0,2	0,2	0,4	0,1	0,2	0,2	0,1	0,5	0,1	0,8	0,2	0,2	0,3	0,1	0,2	0,1	0,1	0,4	0,1		
	r tabel	0,396	0,4	0,396	0,396	0,4	0,4	0,396	0,4	0,4	0,396	0,396	0,4	0,4	0,4	0,396	0,4	0,4	0,4	0,396	0,4	0,4	0,396	0,4	0,4	0,4		
	r hitung	1	0,621	0,57	0,621	0,754	0,61	0,424	0,51	0,6	0,7916	0,64	0,18	0,52	0,341	0,524	0,17	0,5	0,49	0,476	0,41	0,754	0,52	0,57	0,603	0,62		

Appendix 7

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

  A. Calculation of Pre-Test

   1. **Mean score from score total (M_t)**

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

   $$M_t = \frac{483}{25} = 19,32$$

   2. **Standard Deviation (SD_t)**

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

   $$SD_t = \sqrt{\frac{9947}{25} - \left(\frac{483}{25}\right)^2}$$

   $$SD_t = \sqrt{397,88 - 19,32^2}$$

   $$SD_t = \sqrt{397,88 - 373,26}$$

   $$SD_t = \sqrt{25} = 5$$

   3. **Mean Score (M_p)**

   Item 1

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

   $$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+2+19+22+23+22+18+19+18+10+15+19}{21}$$

   $$M_{pl} = \frac{416}{21} = 19,80$$

   Item 2

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

   $$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19+22+23+22+18}{19}$$

   $$M_{pl} = \frac{400}{19} = 21.05$$

Item 3

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

$$M_{pl} =$$

$$\frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19+22+23+22+19+18+10+19}{22}$$

$$M_{pl} = \frac{448}{22} = 20,36$$

Item 4

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19+22+23+22+18}{19}$$

$$M_{pl} = \frac{400}{19} = 21,05$$

Item 5

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+18+18+19+22+23+22+18+19+18}{19}$$

$$M_{pl} = \frac{406}{19} = 21,368$$

Item 6

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19+22+23+22}{18}$$

$$M_{pl} = \frac{382}{18} = 21,22$$

Item 7

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+2+17+18+18+19+22+23+22+18+19+18}{21}$$

$$M_{pl} = \frac{425}{21} = 20,23$$

Item 8

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19+22+23+15+19}{19}$$

$$M_{pl} = \frac{394}{19} = 20{,}73$$

Item 9

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

$$M_{pl} = \frac{23+25+23+23+23+24+23+23+17+22+23+22+18+19+18}{15}$$

$$M_{pl} = \frac{326}{15} = 21{,}73$$

Item 10

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

$$M_{pl=}$$

$$\frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19+22+23+22+18+19+18+15+19}{23}$$

$$M_{pl} = \frac{471}{23} = 20{,}478$$

Item 11

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19+22+23+22+19}{19}$$

$$M_{pl} = \frac{401}{19} = 21{,}10$$

Item 12

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19}{15}$$

$$M_{pl} = \frac{315}{15} = 21$$

Item 13

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19+22+23+22+18+18+10+15+19}{23}$$

$$M_{pl} = \frac{462}{23} = 20,08$$

Item 14

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

$$M_{pl} = \frac{23+25+23+24+23+19+23+22+18+19}{10}$$

$$M_{pl} = \frac{219}{10} = 21,9$$

Item 15

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+22+23+22+18+19+18+10+15+19}{23}$$

$$M_{pl} = \frac{462}{23} = 20,08$$

Item 16

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

$$M_{pl} = \frac{23+25+18+19}{4}$$

$$M_{pl} = \frac{85}{4} = 21,25$$

Item 17

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

$$M_{pl} = \frac{21+25+23+23+24+21+23+23+17+18+18+19+22+23+22+18+19+18+15+19}{20}$$

$$M_{pl} = \frac{411}{20} = 20,55$$

Item 18

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+19+22+23+22+18+19+18+10+15+19}{21}$$

$$M_{pl} = \frac{428}{21} = 20{,}38$$

Item 19

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

$$M_{pl} = \frac{21+25+23+23+23+24+21+23+17+18+19+22+23+22+19+18+15}{17}$$

$$M_{pl} = \frac{356}{17} = 20{,}94$$

Item 20

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+22+23+22+18+19+18+10+15+19}{22}$$

$$M_{pl} = \frac{444}{22} = 20{,}18$$

Item 21

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

$$M_{pl=} \frac{21+23+25+23+23+23+24+21+23+23+18+18+19+22+23+22+18+19+18+15+19}{21}$$

$$M_{pl} = \frac{440}{21} = 20{,}95$$

Item 22

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+18+19+22+23+22+18+19+18+10+15+19}{22}$$

$$M_{pl} = \frac{446}{22} = 20{,}27$$

Item 23

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+14+17+18+18+19+22+23+22+19+18+10+19}{22}$$

$$M_{pl} = \frac{448}{22} = 20{,}36$$

Item 24

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

$$M_{pl} = \frac{23+25+23+23+23+24+23+23+17+22+23+22+18+19+18+19}{16}$$

$$M_{pl} = \frac{345}{16} = 21{,}56$$

Item 25

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

$$M_{pl} = \frac{21+23+25+23+23+23+24+21+23+23+18+18+19+22+23+22+18+19+18+10+15+19}{22}$$

$$M_{pl} = \frac{450}{22} = 20{,}45$$

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

Item 1

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

$$r_{pbi} = \frac{19{,}80-19{,}32}{5}\sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{0{,}48}{5}\sqrt{4}$$

$r_{pbi} = 0{,}096 \times 2 = 0{,}192$

Item 2

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

$$r_{pbi} = \frac{21,05-19,32}{5} \sqrt{\frac{0,8}{0.2}}$$

$$r_{pbi} = \frac{1,73}{5} \sqrt{4}$$

$$r_{pbi} = 0,346 \text{ x } 2 = 0,692$$

Item 3

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

$$r_{pbi} = \frac{20,36-19,32}{5} \sqrt{\frac{0,9}{0.1}}$$

$$r_{pbi} = \frac{1,04}{5} \sqrt{9}$$

$$r_{pbi} = 0,208 \text{ x } 3 = 0,624$$

Item 4

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

$$r_{pbi} = \frac{21.05-19,32}{5} \sqrt{\frac{0,8}{0.2}}$$

$$r_{pbi} = \frac{1,73}{5} \sqrt{4}$$

$$r_{pbi} = 0,346 \text{ x } 2 = 0.692$$

Item 5

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

$$r_{pbi} = \frac{21,36-19,32}{5} \sqrt{\frac{0,8}{0.2}}$$

$$r_{pbi} = \frac{2,04}{5} \sqrt{4}$$

$$r_{pbi} = 0,408 \text{ x } 2 = 0,816$$

Item 6

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

$$r_{pbi} = \frac{21,22-19,32}{5} \sqrt{\frac{0,7}{0.3}}$$

$$r_{pbi} = \frac{1,9}{5} \sqrt{2,3}$$

$$r_{pbi} = 0,38 \text{ x } 1,5 = 0,57$$

Item 7

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

$$r_{pbi} = \frac{20,23-19,32}{5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{0,91}{5} \sqrt{4}$$

$$r_{pbi} = 0.182 \text{ x } 2 = 0,364$$

Item 8

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

$$r_{pbi} = \frac{20,73-19,32}{5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1,41}{5} \sqrt{4}$$

$$r_{pbi} = 0.282 \text{ x } 2 = 0,564$$

Item 9

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

$$r_{pbi} = \frac{21,73-19,32}{5} \sqrt{\frac{0.6}{0.4}}$$

$$r_{pbi} = \frac{2,41}{5} \sqrt{1.5}$$

$$r_{pbi} = 0.482 \text{ x } 1.22 = 0,588$$

Item 10

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

$$r_{pbi} = \frac{20.47-19{,}32}{5} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{1{,}15}{5} \sqrt{9}$$

r_{pbi}= 0.23 x 3 = 0,69

Item 11

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

$$r_{pbi} = \frac{21{,}10-19{,}32}{5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1{,}78}{5} \sqrt{4}$$

r_{pbi}= 0.356 x 2 = 0.712

Item 12

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

$$r_{pbi} = \frac{21-19{,}32}{5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1{,}68}{5} \sqrt{4}$$

r_{pbi}= 0,336 x 2 = 0.672

Item 13

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

$$r_{pbi} = \frac{20{,}08-19{,}32}{5} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0{,}76}{5} \sqrt{9}$$

r_{pbi}= 0.152 x 3 = 0.456

Item 14

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

$$r_{pbi} = \frac{21{,}9-19{,}32}{5} \sqrt{\frac{0.5}{0.5}}$$

$$r_{pbi} = \frac{4{,}38}{5} \sqrt{1}$$

$$r_{pbi} = 0.876 \times 1 = 0{,}876$$

Item 15

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

$$r_{pbi} = \frac{20{,}08-19{,}32}{5} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0{,}76}{5} \sqrt{9}$$

$$r_{pbi} = 0.152 \times 3 = 0{,}456$$

Item 16

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

$$r_{pbi} = \frac{21{,}25-19{,}32}{5} \sqrt{\frac{0.2}{0.8}}$$

$$r_{pbi} = \frac{1{,}93}{5} \sqrt{0{,}25}$$

$$r_{pbi} = 0.386 \times 0{,}5 = 0.193$$

Item 17

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

$$r_{pbi} = \frac{20{,}55-19{,}32}{5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1{,}23}{5} \sqrt{4}$$

$$r_{pbi} = 0{,}246 \times 2 = 0.492$$

Item 18

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

$$r_{pbi} = \frac{20{,}38-19{,}32}{5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1{,}06}{5} \sqrt{4}$$

$$r_{pbi} = 0.212 \text{ x } 2 = 0.424$$

Item 19

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

$$r_{pbi} = \frac{20{,}94-19{,}32}{5} \sqrt{\frac{0{,}7}{0.3}}$$

$$r_{pbi} = \frac{1{,}62}{5} \sqrt{2{,}3}$$

$$r_{pbi} = 0{,}324 \text{ x } 1{,}5 = 0{,}486$$

Item 20

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

$$r_{pbi} = \frac{20{,}18-19{,}32}{5} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0{,}86}{5} \sqrt{9}$$

$$r_{pbi} = 0{,}172 \text{ x } 3 = 0{,}516$$

Item 21

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

$$r_{pbi} = \frac{20{,}95-19{,}32}{5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{1{,}63}{5} \sqrt{4}$$

$$r_{pbi} = 0.326 \text{ x } 2 = 0{,}652$$

Item 22

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

$$r_{pbi} = \frac{20,27-19,32}{5} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{0,95}{5} \sqrt{9}$$

r_{pbi}= 0.19 x 3 = 0,57

Item 23

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

$$r_{pbi} = \frac{20,36-19,32}{5} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{1,04}{5} \sqrt{9}$$

r_{pbi}= 0.208 x 3 = 0.624

Item 24

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

$$r_{pbi} = \frac{21.56-19,32}{5} \sqrt{\frac{0,6}{0,4}}$$

$$r_{pbi} = \frac{2,24}{5} \sqrt{1,5}$$

r_{pbi}= 0.448 x 1.22 = 0,5486

Item 25

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

$$r_{pbi} = \frac{20,45-19,32}{5} \sqrt{\frac{0.9}{0.1}}$$

$$r_{pbi} = \frac{1,13}{5} \sqrt{9}$$

r_{pbi}= 0.226 x 3 = 0,678

Appendix 8

Table Validity of Pre-test

No	M_p	M_t	SD_t	P	Q	$r_{pbi=\frac{M_p-M_t}{SD_t}\sqrt{\frac{p}{q}}}$	r_t on 5% significant	Interpretation
	19.80	19.32	5	0.8	0.2	0.192	0.396	Invalid
	21.05	19.32	5	0.8	0.2	0.692	0.396	Valid
	20.36	19.32	5	0.9	0.1	0.624	0.396	Valid
	21.05	19.32	5	0.8	0.2	0.692	0.396	Valid
	21.36	19.32	5	0.8	0.2	0.816	0.396	Valid
	21.22	19.32	5	0.7	0.3	0.57	0.396	Valid
	20.23	19.32	5	0.8	0.2	0.364	0.396	Invalid
	20.73	19.32	5	0.8	0.2	0.564	0.396	Valid
	21.73	19.32	5	0.6	0.4	0.588	0.396	Valid
	20.47	19.32	5	0.9	0.1	0.69	0.396	Valid
	21.10	19.32	5	0.8	0.2	0.712	0.396	Valid
	21	19.32	5	0.8	0.2	0.672	0.396	Valid
	20.08	19.32	5	0.9	0.1	0.456	0.396	Valid
	21.9	19.32	5	0.5	0.5	0.876	0.396	Valid
	20.08	19.32	5	0.9	0.1	0.456	0.396	Valid
	21.25	19.32	5	0.2	0.8	0.193	0.396	Invalid
	20.55	19.32	5	0.8	0.2	0.492	0.396	Valid
	20.38	19.32	5	0.8	0.2	0.424	0.396	Valid
	20.94	19.32	5	0.7	0.3	0.486	0.396	Valid
	20.18	19.32	5	0.9	0.1	0.516	0.396	Valid
	20.95	19.32	5	0.8	0.2	0.625	0.396	Valid
	20.27	19.32	5	0.9	0.1	0.57	0.396	Valid
	20.36	19.32	5	0.9	0.1	0.624	0.396	Valid
	21.56	19.32	5	0.6	0.4	0.5486	0.396	Valid
	20.45	19.32	5	0.9	0.1	0.678	0.396	Valid

Appendix 9

Reliability
of Post
Test

NO	NAMA	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	Nadya	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	21	441
2	May Zahro Tambunan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	23	529
3	Hasanatul Balqiah Hrp	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25	625
4	Sopiah Ulpah Nst	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	23	529
5	Nur Hanipah	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	23	529
6	Gusnur Alimah	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	23	529
7	Putri Nandini Nst	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	24	576
8	Teguh Imbang Darli	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	21	441
9	Umar Bahrin	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	23	529
10	Salsabila Hsb	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	23	529
11	Annisa Fitri Hsb	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
12	Silva Fadillah Hsb	0	1	1	1	0	1	0	1	0	1	1	1	1	0	1	0	1	0	1	1	0	1	1	0	0	14	196
13	Lira Aulia	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	0	0	1	1	0	17	289
14	Wardah Pajirah Hrp	0	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	0	0	1	1	0	1	0	1	18	324
15	Nur Afifah	0	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	0	1	0	1	1	1	0	1	18	324
16	Seva Anela Budianto	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	0	1	1	1	0	1	21	441
17	Ropika Rahayu	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	23	529
18	Oktafina Syahfitri	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	24	576
19	Fahmi Salim Azis	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	23	529
20	Riska Andriani	1	1	0	1	1	0	1	0	1	1	0	1	1	1	1	0	1	1	0	1	1	1	0	1	1	21	441
21	Sahara Annisa Nur	1	0	1	0	1	0	1	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	25	625
22	Rafly Mushaleh Hrp	1	0	1	0	1	0	1	0	1	1	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	22	484
23	Muhammad Wahid	1	0	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	1	0	1	1	0	1	9	81
24	Ihsan Marwadi	1	0	0	0	1	0	0	1	0	1	0	1	1	1	1	0	1	1	1	1	1	1	0	0	1	20	400
25	Wildan Harahap	1	0	1	0	1	0	0	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	23	529
	N = 25	21	19	22	19	21	18	21	19	16	23	19	21	23	12	23	4	20	21	17	22	21	22	22	16	22	509	11029
	p	0,8	0,8	0,9	0,8	0,8	0,7	0,8	0,8	0,6	0,9	0,8	0,8	0,9	0,5	0,9	0,2	0,8	0,8	0,7	0,9	0,8	0,9	0,9	0,6	0,9		
	q	0,2	0,2	0,1	0,2	0,2	0,3	0,2	0,2	0,4	0,1	0,2	0,2	0,1	0,5	0,1	0,8	0,2	0,2	0,3	0,1	0,2	0,1	0,1	0,4	0,1		
	pq	0,134	0,182	0,106	0,182	0,134	0,2	0,1344	0,18	0,23	0,0736	0,182	0,13	0,07	0,25	0,074	0,13	0,16	0,13	0,22	0,11	0,13	0,11	0,11	0,23	0,11	Σpq	3,7088

Appendix 10

Reliability of Pre Test

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

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

N = 25

$\sum Xt = 458$

$\sum Xt^2 = 9666$

$\sum pq = 5.16$

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

$$= 9666 - \left(\frac{458}{25} \right)^2 = 9666 - 18.32^2 = 9666 - 335.6224 = 9330.3776$$

$$S_t^2 = \frac{\sum Xt2}{N} = \frac{9330.3776}{25}$$

$$S_t^2 = 373.215$$

$$R_{11} = \left(\frac{n}{n-1}\right)\left(\frac{S_{t2}-\sum pq}{S_{t2}}\right)$$

$$R_{11} = \left(\frac{25}{25-1}\right)\left(\frac{373.215-5.16}{373.215}\right) = \left(\frac{25}{24}\right)\left(\frac{368.055}{373.215}\right)$$

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

Appendix
11

Validity
of Post
Test

NO	NAMA	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	
1	Nadya	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		0	0	0	0	1	1
2	May Zahro Tambunan	1	0	1	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	0	11	121
3	Hasanatul Balqiah Hrp	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	23	529
4	Sopiah Ulpah Nst	1	0	1	1	0	0	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	18	324
5	Nur Hanipah	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	6	36
6	Gusnur Alimah	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	21	441
7	Putri Nandini Nst	0	1	0	1	0	1	1	0	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	1	1	12	144
8	Teguh Imbang Darli	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	24	576
9	Umar Bahrin	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	1	1	1	0	1	1	21	441
10	Salsabila Hsb	1	1	1	0	0	1	0	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	0	13	169
11	Annisa Fitri Hsb	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	23	529
12	Silva Fadillah Hsb	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	23	529
13	Lira Aulia	1	1	1	0	0	1	0	1	1	1	1	1	0	1	1	0	1	0	1	1	1	1	1	0	0	17	289
14	Wardah Pajirah Hrp	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	22	484
15	Nur Afifah	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	22	484
16	Seva Anela Budianto	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24	576
17	Ropika Rahayu	1	0	1	0	0	0	1	1	1	1	1	1	0	0	1	0	0	0	1	1	1	1	0	1	1	16	256
18	Oktafina Syahfitri	1	1	1	0	0	1	0	1	1	1	1	1	0	1	0	1	1	0	1	1	1	1	0	0	0	17	289
19	Fahmi Salim Azis	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	4
20	Riska Andriani	1	1	1	0	1	1	0	1	1	1	1	1	0	1	0	0	0	0	1	1	1	1	1	0	0	16	256
21	Sahara Annisa Nur	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	22	484
22	Rafly Mushaleh Hrp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
23	Muhammad Wahid	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3	9
24	Ihsan Marwadi	1	0	1	0	0	1	0	1	1	0	1	1	1	0	1	1	0	0	0	1	1	1	1	0	1	16	256
25	Wildan Harahap	1	1	1	0	0	1	0	1	1	1	1	1	0	1	0	1	0	0	1	1	1	1	1	0	0	16	256
	N = 25	19	17	19	14	6	17	14	19	19	21	19	19	14	15	13	14	5	6	20	19	19	19	15	14	14	390	7484
	p	0,8	0,7	0,8	0,6	0,2	0,7	0,6	0,8	0,8	0,8	0,8	0,8	0,6	0,6	0,5	0,6	0,2	0,2	0,8	0,8	0,8	0,8	0,6	0,6	0,6		
	q	0,2	0,3	0,2	0,4	0,8	0,3	0,4	0,2	0,2	0,2	0,2	0,2	0,4	0,4	0,5	0,4	0,8	0,8	0,2	0,2	0,2	0,2	0,4	0,4	0,4		
	r tabel	0,396	0,4	0,4	0,4	0,4	0,4	0,4	0,396	0,4	0,4	0,4	0,4	0,396	0,4	0,4	0,4	0,396	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,396		
	r hitung	0,859	0,65	0,86	0,739	0,46	0,65	0,74	0,859	0,86	0,327	0,86	0,86	0,739	0,55	0,41	0,57	0,321	0,33	0,35365	0,85857	0,85857	0,85857	0,54554	0,74	0,739		

Appendix 12

Calculation of the formulation $r_{pbi} = \frac{M_{p-M_t}}{SD_t} \sqrt{\frac{p}{q}}$ **in Post-Test**

B. **Calculation of Post-Test**

1. **Mean score from score total (M$_t$)**

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

   $M_t = \frac{390}{25} = 15.6$

2. **Standard Deviation (SD$_t$)**

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

   $SD_t = \sqrt{\frac{7484}{25} - \left(\frac{390}{25}\right)^2}$

   $SD_t = \sqrt{299{,}36 - 243{,}36}$

   $SD_t = \sqrt{56} = 7.5$

3. **Mean Score (M$_p$)**

Item 1

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

$$M_{pl} = \frac{11+23+18+21+24+21+13+23+23+17+22+22+24+16+17+16+22+16+16}{19}$$

$$M_{pl} = \frac{365}{19} = 19.21$$

Item 2

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

$$M_{pl} = \frac{23+6+21+12+24+21+13+23+23+17+22+22+24+16+16+22+16}{17}$$

$$M_{pl} = \frac{321}{17} = 18,88$$

Item 3

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

$$M_{pl=} \frac{11+23+18+21+24+21+13+23+23+17+22+22+24+16+17+16+22+16+16}{19}$$

$$M_{pl} = \frac{365}{19} = 19,21$$

Item 4

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

$$M_{pl} = \frac{23+18+21+24+21+13+23+17+22+22+24+16+17+16+22+16+16}{14}$$

$$M_{pl} = \frac{331}{14} = 23,64$$

Item 5

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

$$M_{pl} = \frac{23+24+21+23+23+16}{6}$$

$$M_{pl} = \frac{130}{6} = 21,6$$

Item 6

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

$$M_{pl} = \frac{23+6+21+12+24+21+13+23+23+17+22+22+24+17+2+16}{17}$$

$$M_{pl} = \frac{286}{17} = 16,82$$

Item 7

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

$$M_{pl} = \frac{23+18+21+24+21+13+23+17+22+22+24+16+17+16+22+16+16}{14}$$

$$M_{pl} = \frac{331}{14} = 23{,}64$$

Item 8

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

$$M_{pl} = \frac{11+23+18+21+24+21+13+23+23+17+22+22+24+16+17+16+22+16+16}{19}$$

$$M_{pl} = \frac{365}{19} = 19{,}21$$

Item 9

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

$$M_{pl} = \frac{11+23+18+21+24+21+13+23+23+17+22+22+24+16+17+16+22+16+16}{19}$$

$$M_{pl} = \frac{365}{19} = 19{,}21$$

Item 10

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

$$M_{pl} = \frac{11+23+18+6+21+12+24+21+13+23+23+17+22+24+16+17+2+16+22+3+16}{21}$$

$$M_{pl} = \frac{350}{21} = 16,66$$

Item 11

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

$$M_{pl} = \frac{11+23+18+21+24+21+23+13+23+17+22+22+24+16+17+16+22+16+16}{19}$$

$$M_{pl} = \frac{365}{19} = 19,21$$

Item 12

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

$$M_{pl} = \frac{11+23+18+21+24+21+23+13+23+17+22+22+24+16+17+16+22+16+16}{19}$$

$$M_{pl} = \frac{365}{19} = 19.21$$

Item 13

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

$$M_{pl} = \frac{23+18+21+24+21+13+23+17+22+22+24+16+17+16+22+16+16}{14}$$

$$M_{pl} = \frac{331}{14} = 23{,}64$$

Item 14

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

$$M_{pl} = \frac{23+18+6+21+12+24+23+23+17+22+24+17+16+22+16}{15}$$

$$M_{pl} = \frac{284}{15} = 18{,}93$$

Item 15

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

$$M_{pl} = \frac{23+24+21+23+23+17+22+22+24+22+1+3+16}{13}$$

$$M_{pl} = \frac{240}{13} = 18{,}46$$

Item 16

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

$$M_{pl} = \frac{23+24+21+23+23+22+22+24+16+17+2+22+16+16}{14}$$

$$M_{pl} = \frac{271}{14} = 19,35$$

Item 17

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

$$M_{pl} = \frac{22+17+22+24+17}{5}$$

$$M_{pl} = \frac{102}{5} = 20,4$$

Item 18

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

$$M_{pl} = \frac{21+12+24+22+24+17}{6}$$

$$M_{pl} = \frac{120}{6} = 20$$

Item 19

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

$$M_{pl} = \frac{1+11+23+18+6+21+12+24+21+13+23+23+17+22+22+24+16+22+3+16}{20}$$

$$M_{pl} = \frac{338}{20} = 16,9$$

Item 20

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

$$M_{pl} = \frac{11+23+18+21+24+21+13+23+23+17+22+22+24+16+17+16+22+16+16}{19}$$

$$M_{pl} = \frac{365}{19} = 19,21$$

Item 21

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

$$M_{pl} = \frac{11+23+18+21+24+21+13+23+23+17+22+22+24+16+17+16+22+16+16}{19}$$

$$M_{pl} = \frac{365}{19} = 19,21$$

Item 22

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

$$\text{M}_{pl} = \frac{11+23+18+21+24+21+13+23+23+17+22+22+24+16+17+16+22+16+16}{19}$$

$$\text{M}_{pl} = \frac{365}{19} = 19{,}21$$

Item 23

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

$$\text{M}_{pl} = \frac{23+18+11+21+12+24+23+23+17+22+24+17+16+22+16}{15}$$

$$\text{M}_{pl} = \frac{289}{15} = 19{,}26$$

Item 24

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

$$\text{M}_{pl} = \frac{23+18+21+24+21+13+23+17+22+22+24+16+17+16+22+16+16}{14}$$

$$\text{M}_{pl} = \frac{331}{14} = 23{,}64$$

Item 25

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

$$M_{pl} = \frac{23+18+21+24+21+13+23+17+22+22+24+16+17+16+22+16+16}{14}$$

$$M_{pl} = \frac{331}{14} = 23{,}64$$

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

Item 1

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

$$r_{pbi} = \frac{19.21-15.6}{7,5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{3.61}{7,5} \sqrt{4}$$

r_{pbi}= 0,481 x 2 = 0.962

Item 2

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

$$r_{pbi} = \frac{18,88-15.6}{7,5} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{3,28}{7,5} \sqrt{2,3}$$

r_{pbi}= 0.437 x 1.5 = 0.656

Item 3

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

$$r_{pbi} = \frac{19,21-15,6}{7,5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{pbi} = \frac{3,61}{7,5} \sqrt{4}$$

r_{pbi}= 0.481 x 2 = 0.962

Item 4

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

$$r_{pbi} = \frac{23,64-15.6}{7,5} \sqrt{\frac{0.6}{0.4}}$$

$$r_{pbi} = \frac{8,04}{7,5} \sqrt{1,5}$$

r_{pbi}= 1,072 x 1,22 = 1,312

Item 5

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

$$r_{pbi} = \frac{21,6-15.6}{7,5} \sqrt{\frac{0.2}{0.8}}$$

$$r_{pbi} = \frac{6}{7,5} \sqrt{0,25}$$

r_{pbi}= 0.8 x 0.5= 0.4

Item 6

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

$$r_{pbi} = \frac{16,82-15,6}{7,5} \sqrt{\frac{0.7}{0.3}}$$

$$r_{pbi} = \frac{1,22}{7,5} \sqrt{2,3}$$

r_{pbi}= 0.162 x 1.5= 0.244

Item 7

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

$$r_{pbi} = \frac{23,64-15.6}{7,5} \sqrt{\frac{0.6}{0.4}}$$

$$r_{pbi} = \frac{8,04}{7,5} 1,5$$

r_{pbi}= 1,072 x 1,22 = 1,312

Item 8

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

$$r_{\text{pbi}} = \frac{19{,}21-15.6}{7{,}5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{3{,}61}{7{,}5} \sqrt{4}$$

$r_{\text{pbi}} = 0.481 \text{ x } 2 = 0.962$

Item 9

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

$$r_{\text{pbi}} = \frac{19{,}21-15.6}{7{,}5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{3{,}61}{7{,}5} \sqrt{4}$$

$r_{\text{pbi}} = 0.481 \text{ x } 2 = 0{,}962$

Item 10

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

$$r_{\text{pbi}} = \frac{16{,}66-15.6}{7{,}5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{1{,}06}{7{,}5} \sqrt{4}$$

$r_{\text{pbi}} = 0.141 \text{ x } 2 = 0{,}282$

Item 11

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

$$r_{\text{pbi}} = \frac{19{,}21-15.6}{7{,}5} \sqrt{\frac{0{,}8}{0.2}}$$

$$r_{\text{pbi}} = \frac{3{,}61}{7{,}5} \sqrt{4}$$

$r_{\text{pbi}} = 0.481 \text{ x } 2 = 0.962$

Item 12

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

$$r_{\text{pbi}} = \frac{19{,}21-15.6}{7{,}5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{3{,}61}{7{,}5} \sqrt{4}$$

$r_{\text{pbi}} = 0.481 \text{ x } 2 = 0.962$

Item 13

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

$$r_{\text{pbi}} = \frac{23{,}64-15.6}{7{,}5} \sqrt{\frac{0.6}{0.4}}$$

$$r_{\text{pbi}} = \frac{8{,}04}{7{,}5} \sqrt{1{,}5}$$

$r_{\text{pbi}} = 1{,}072 \text{ x } 1{,}22 = 1{,}30$

Item 14

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

$$r_{\text{pbi}} = \frac{18{,}93-15.6}{7{,}5} \sqrt{\frac{0.6}{0.4}}$$

$$r_{\text{pbi}} = \frac{3{,}33}{7{,}5} \sqrt{1{,}5}$$

$r_{\text{pbi}} = 0.444 \text{ x } 1.22 = 0.541$

Item 15

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

$$r_{\text{pbi}} = \frac{18{,}46-15.6}{7{,}5} \sqrt{\frac{0.5}{0.5}}$$

$$r_{\text{pbi}} = \frac{2{,}86}{7{,}5} \sqrt{1}$$

$r_{\text{pbi}} = 0.4 \text{ x } 1 = 0{,}4$

Item 16

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

$$r_{\text{pbi}} = \frac{19{,}35 - 15.6}{7{,}5} \sqrt{\frac{0.6}{0.4}}$$

$$r_{\text{pbi}} = \frac{3{,}75}{7{,}5} \sqrt{1.5}$$

$r_{\text{pbi}} = 0.5 \text{ x } 1.22 = 0.61$

Item 17

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

$$r_{\text{pbi}} = \frac{20{,}4 - 15.6}{7{,}5} \sqrt{\frac{0.2}{0.8}}$$

$$r_{\text{pbi}} = \frac{4{,}8}{7{,}5} \sqrt{0{,}25}$$

$r_{\text{pbi}} = 0.64 \text{ x } 0{,}5 = 0.32$

Item 18

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

$$r_{\text{pbi}} = \frac{20 - 15.6}{7{,}5} \sqrt{\frac{0.2}{0.8}}$$

$$r_{\text{pbi}} = \frac{4{,}4}{7{,}5} \sqrt{0{,}25}$$

$r_{\text{pbi}} = 0.586 \text{ x } 0{,}5 = 0{,}293$

Item 19

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

$$r_{\text{pbi}} = \frac{16{,}9 - 15.6}{7{,}5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{1{,}3}{7{,}5} \sqrt{4}$$

$r_{\text{pbi}} = 0.173 \text{ x } 2 = 0.346$

Item 20

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

$$r_{\text{pbi}} = \frac{19{,}21 - 15.6}{7{,}5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{3{,}61}{7{,}5} \sqrt{4}$$

$r_{\text{pbi}} = 0.481 \text{ x } 2 = 0.962$

Item 21

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

$$r_{\text{pbi}} = \frac{19{,}21 - 15.6}{7{,}5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{3{,}61}{7{,}5} \sqrt{4}$$

$r_{\text{pbi}} = 0.481 \text{ x } 2 = 0.962$

Item 22

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

$$r_{\text{pbi}} = \frac{19{,}21 - 15{,}6}{7{,}5} \sqrt{\frac{0.8}{0.2}}$$

$$r_{\text{pbi}} = \frac{3{,}61}{7{,}5} \sqrt{4}$$

$r_{\text{pbi}} = 0.481 \text{ x } 2 = 0.962$

Item 23

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

$$r_{\text{pbi}} = \frac{19{,}26 - 15.6}{7{,}5} \sqrt{\frac{0.6}{0.4}}$$

$$r_{\text{pbi}} = \frac{3{,}66}{7{,}5} \sqrt{1{,}5}$$

r_{pbi}= 0.488 x 1,22 = 0.597

Item 24

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

$$r_{pbi} = \frac{23,64-15.6}{7,5} \sqrt{\frac{0.6}{0.4}}$$

$$r_{pbi} = \frac{8,04}{7,5} \sqrt{1.5}$$

$r_{pbi} = 1,072 \text{ x } 1.22 = 1,312$

Item 25

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

$$r_{pbi} = \frac{23,64-15.6}{7,5} \sqrt{\frac{0.4}{0.6}}$$

$$r_{pbi} = \frac{8,04}{7,5} \sqrt{1,5}$$

r_{pbi}= 1,072 x 1,22 = 1,312

Appendix 13

Table Validity of Post-test

No	M_p	M_t	SD_t	p	Q	$r_{pbi=\frac{M_{p-M_t}}{SD_t}\sqrt{\frac{p}{q}}}$	r_t on 5% significant	Interpretation
	19.21	15.6	7.5	0.8	0.2	0.962	0.396	Valid
	18.88	15.6	7.5	0.7	0.3	0.656	0.396	Valid
	19.21	15.6	7.5	0.8	0.2	0.962	0.396	Valid
	23.64	15.6	7.5	0.6	0.4	1.312	0.396	Valid
	21.6	15.6	7.5	0.2	0.8	0.4	0.396	Valid
	16.82	15.6	7.5	0.7	0.3	0.244	0.396	Invalid
	23.64	15.6	7.5	0.6	0.4	1.312	0.396	Valid
	19.21	15.6	7.5	0.8	0.2	0.962	0.396	Valid
	19.21	15.6	7.5	0.8	0.2	0.962	0.396	Valid
	16.66	15.6	7.5	0.8	0.2	0.282	0.396	Invalid
	19.21	15.6	7.5	0.8	0.2	0.962	0.396	Valid
	19.21	15.6	7.5	0.8	0.2	0.962	0.396	Valid
	23.64	15.6	7.5	0.6	0.4	1.30	0.396	Valid
	18.93	15.6	7.5	0.6	0.4	0.542	0.396	Valid
	18.46	15.6	7.5	0.5	0.5	0.4	0.396	Valid
	19.35	15.6	7.5	0.6	0.4	0.61	0.396	Valid
	20.4	15.6	7.5	0.2	0.8	0.32	0.396	Invalid
	20	15.6	7.5	0.2	0.8	0.293	0.396	Invalid
	16.9	15.6	7.5	0.8	0.2	0.346	0.396	Invalid
	19.21	15.6	7.5	0.8	0.2	0.962	0.396	Valid
	19.21	15.6	7.5	0.8	0.2	0.962	0.396	Valid
	19.21	15.6	7.5	0.8	0.2	0.962	0.396	Valid
	19.26	15.6	7.5	0.6	0.4	0.597	0.396	Valid
	23.64	15.6	7.5	0.6	0.4	1.312	0.396	Valid
	23.64	15.6	7.5	0.6	0.4	1.312	0.396	Valid

Reliability
of Post
Test

NO	NAMA	Item																									Xt	Xt^2
		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		
1	Nadya	1	1	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	6	36
2	May Zahro Tambunan	1	1	1	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	9	81
400	Hasanatul Balqiah Hrp	1	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1	0	0	1	1	1	1	1	1	1	20	400
4	Sopiah Ulpah Nst	1	1	1	1	0	0	0	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	1	1	17	289
5	Nur Hanipah	1	0	0	0	0	1	0	1	1	1	1	0	1	1	0	0	0	0	1	1	0	0	1	0	0	11	121
6	Gusnur Alimah	1	0	1	1	0	1	0	1	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	15	225
121	Putri Nandini Nst	1	0	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	0	1	1	1	1	11	121
8	Teguh Imbang Darli	1	0	1	1	1	1	0	1	0	1	1	0	0	1	1	1	0	1	1	0	1	1	1	1	1	18	324
9	Umar Bahrin	0	0	1	1	1	1	0	1	0	1	1	0	0	0	1	1	0	0	1	0	1	1	0	1	1	14	196
121	Salsabila Hsb	1	0	1	0	0	1	0	1	1	1	1	0	1	0	0	0	0	0	1	0	1	1	0	0	0	11	121
11	Annisa Fitri Hsb	1	0	1	1	1	1	1	1	0	1	1	0	0	1	1	1	0	0	1	0	1	1	1	1	1	18	324
12	Silva Fadillah Hsb	1	0	1	1	1	1	1	1	0	1	1	0	0	1	1	1	0	0	1	0	1	1	1	1	1	18	324
169	Lira Aulia	1	0	1	0	0	1	1	0	0	1	0	0	0	1	1	0	1	0	1	1	1	1	1	0	0	13	169
14	Wardah Pajirah Hrp	1	0	1	1	0	1	0	0	0	0	1	0	0	1	1	1	1	0	1	1	1	1	1	1	1	16	256
15	Nur Afifah	1	0	1	1	0	1	0	0	1	1	0	0	1	0	1	1	1	1	1	1	1	1	0	1	1	17	289
16	Seva Anela Budianto	1	0	1	1	0	1	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	19	361
144	Ropika Rahayu	1	0	1	1	0	0	0	0	1	1	0	0	0	1	0	1	0	0	1	1	1	0	1	1	1	12	144
18	Oktafina Syahfitri	1	0	1	0	0	1	1	1	1	1	1	0	1	1	0	1	1	1	0	0	1	1	1	0	0	16	256
36	Fahmi Salim Azis	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	1	0	0	0	0	0	6	36
20	Riska Andriani	1	0	1	0	1	1	0	1	1	1	1	0	0	1	0	0	0	0	1	1	1	1	1	0	0	14	196
21	Sahara Annisa Nur	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	20	400
22	Rafly Mushaleh Hrp	1	0	0	0	0	0	0	0	1	0	1	1	1	0	1	0	0	0	0	1	0	0	0	0	0	7	49
23	Muhammad Wahid	1	0	0	0	0	0	0	1	0	1	1	0	1	0	1	0	0	0	1	1	0	0	0	0	0	8	64
24	Ihsan Marwadi	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	1	1	1	9	81
25	Wildan Harahap	0	0	1	0	0	1	0	0	1	1	1	0	0	1	0	1	0	0	1	1	1	1	1	0	0	12	144
	N = 25	22	3	19	14	6	17	8	12	13	21	18	4	10	15	13	14	5	6	20	16	19	19	15	14	14	337	5007
	p	0,9	0,1	0,8	0,6	0,2	0,7	0,3	0,5	0,5	0,8	0,7	0,2	0,4	0,6	0,5	0,6	0,2	0,2	0,8	0,6	0,8	0,8	0,6	0,6	0,6		
	q	0,1	0,9	0,2	0,4	0,8	0,3	0,7	0,5	0,5	0,2	0,3	0,8	0,6	0,4	0,5	0,4	0,8	0,8	0,2	0,4	0,2	0,2	0,4	0,4	0,4		
	p.q	0,106	0,106	0,18	0,25	0,18	0,218	0,22	0,25	0,25	0,13	0,202	0,134	0,24	0,24	0,25	0,25	0,16	0,18	0,16	0,23	0,182	0,182	0,24	0,246	0,25	Σpq	5.16

Appendix 15

Reliability of Post Test

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

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

N= 25

$\sum Xt = 393$

$\sum Xt^2 = 7413$

$\sum pq = 6.23$

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

$$= 7413 - \left(\frac{393}{25}\right)^2 = 7413 - 15.72^2 = 7413 - 247.11 = 7165.89$$

$$S_t^2 = \frac{\sum Xt2}{N} = \frac{7165.89}{25}$$

$$S_t^2 = 286.6356$$

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

$$R_{11} = \left(\frac{25}{25-1}\right)\left(\frac{286.6356 - 6.23}{286.6356}\right) = \left(\frac{25}{24}\right)\left(\frac{280.4}{286.6356}\right)$$

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

Appendix 16

Score of Experimental Class and Control Class
Pre Test

a. Score of Experimental Class Pre Test before using Word Wall Media

No	The Name of Students (n)	Pre Test	No	The Name of Students (n)	Pre Test
1	Abdul Hadi Ritonga	70	21	Lenni Khairani	70
2	Ade Annisa Mora	55	22	Mawaddah Siregar	50
3	Ahmad Faiz Mansuri	65	23	Mhd. Aulia Pranata	60
4	Aidil Iswandi	55	24	Mhd. Sawali Raiz Hrp	40
5	Alwi Riski	40	25	Nabilah Putri	50
6	Alya Rohani	45	26	Najla Afrelia	55
7	Anju Pratama	55	27	Nazwah Kholilah	80
8	Armansyah Nasution	40	28	Nurjamilah Nasution	55
9	Aulia Safura	45	29	Nurul Afifah Najwa	75
10	Bonar Simare-mare	70	30	Putra Permata Daulay	50
11	Cyndi Nurafifa	55	31	Rahma Dinda Daulay	50
12	Devi Sakina	55	32	Rangga Harahap	50
13	Edo Ibrahim	70	33	Sania Mirza Harahap	60
14	Fadhilah Azkia	85	34	Sheika Al-Hasanah	80
15	Harith Asdah Siregar	60	35	Syadiah Azra	70
16	Ikhwan Simatupang	40	36	Tohar Vany Saputra	85
17	Indah Alvia Sari	45	37	Widia Amanda	50
18	Irsan Aziz Pratama	80	38	Zaskia Adha Daulay	60
19	Juhria Wardatul	65	39	Riska Yanti Harahap	65
20	Khoirul Rizki	40			
	Total			2290	

b. Score of Control Class Pre Test

No	The Name of Students (n)	Pre Test	No	The Name of Students (n)	Pre Test
1	Abdul Jalil	60	21	Muhammad Farel	60
2	Akmal Mudjakkir	65	22	Muhammad Sazali Raiz	45
3	Anggi Meylinda	55	23	Muhammad Zaky	50
4	Airyn	70	24	Mediana	50
5	Amiruddin	45	25	Nuraini Salsabila	55
6	Ar-Rahman	40	26	Nadia	50
7	Aulia Rahman	60	27	Nurul Anifa	60
8	Ade Rezekina	40	28	Neza Anastasya	75
9	Ahmad Rafi	40	29	Naila Riski	55
10	Bustami Arifin	50	30	Rahmad Ramadan	50
11	Cinta Fitrah	75	31	Rosiana Puspita Sari	55
12	Dian Rahmadani	55	32	Rahma Wulan	50
13	Ega Farandi	60	33	Rizki Amanda	50
14	Fadila Hayati	40	34	Sinta	50
15	Ikhwansyah	85	35	Sapni Aminah	50
16	Intan Khoirunnisa	50	36	Syarifah Ainun	50
17	Ikhsan Abdul Manan	45	37	Thoriq Haikal	50
18	Julia Amanda	45	38	Widia Ayu	55
19	Kaprian Anugrah	50	39	Yogi Pratama	55
20	Line Array	75			
	Total			2120	

Appendix 17

Score of Experimental Class and Control Class
Post Test

a. Score of Experimental Class Post Test after Using Word Wall Media

No	The Name of Students (n)	Pre Test	No	The Name of Students (n)	Pre Test
1	Abdul Hadi Ritonga	70	21	Lenni Khairani	65
2	Ade Annisa Mora	95	22	Mawaddah Siregar	70
3	Ahmad Faiz Mansuri	65	23	Mhd. Aulia Pranata	60
4	Aidil Iswandi	55	24	Mhd. Sawali Raiz Hrp	60
5	Alwi Riski	75	25	Nabilah Putri	95
6	Alya Rohani	80	26	Najla Afrelia	95
7	Anju Pratama	85	27	Nazwah Kholilah	95
8	Armansyah Nasution	50	28	Nurjamilah Nasution	85
9	Aulia Safura	65	29	Nurul Afifah Najwa	55
10	Bonar Simare-mare	65	30	Putra Permata Daulay	60
11	Cyndi Nurafifa	65	31	Rahma Dinda Daulay	95
12	Devi Sakina	65	32	Rangga Harahap	95
13	Edo Ibrahim	80	33	Sania Mirza Harahap	95
14	Fadhilah Azkia	65	34	Sheika Al-Hasanah	60
15	Harith Asdah Siregar	50	35	Syadiah Azra	95
16	Ikhwan Simatupang	55	36	Tohar Vany Saputra	60
17	Indah Alvia Sari	85	37	Widia Amanda	60
18	Irsan Aziz Pratama	80	38	Zaskia Adha Daulay	60
19	Juhria Wardatul	65	39	Riska Yanti Harahap	60
20	Khoirul Rizki	70			
	Total			2795	

b. Score of Control Class Post Test

No	The Name of Students (n)	Pre Test	No	The Name of Students (n)	Pre Test
1	Abdul Jalil	55	21	Muhammad Farel	60
2	Akmal Mudjakkir	50	22	Muhammad Sazali Raiz	60
3	Anggi Meylinda	50	23	Muhammad Zaky	70
4	Airyn	55	24	Mediana	60
5	Amiruddin	50	25	Nuraini Salsabila	60
6	Ar-Rahman	60	26	Nadia	65
7	Aulia Rahman	60	27	Nurul Anifa	65
8	Ade Rezekina	60	28	Neza Anastasya	65
9	Ahmad Rafi	60	29	Naila Riski	65
10	Bustami Arifin	55	30	Rahmad Ramadan	70
11	Cinta Fitrah	60	31	Rosiana Puspita Sari	70
12	Dian Rahmadani	50	32	Rahma Wulan	70
13	Ega Farandi	60	33	Rizki Amanda	75
14	Fadila Hayati	50	34	Sinta	75
15	Ikhwansyah	80	35	Sapni Aminah	80
16	Intan Khoirunnisa	60	36	Syarifah Ainun	80
17	Ikhsan Abdul Manan	60	37	Thoriq Haikal	85
18	Julia Amanda	60	38	Widia Ayu	85
19	Kaprian Anugrah	60	39	Yogi Pratama	95
20	Line Array	60			
	Total			2535	

Appendix 18

The Comparison of Pre Test and Post Test

a. **Experimental Class**

No	The Name of Students (n)	Pre Test	Post Test
1	Abdul Hadi Ritonga	70	70
2	Ade Annisa Mora	55	95
3	Ahmad Faiz Mansuri	65	65
4	Aidil Iswandi	55	55
5	Alwi Riski	40	75
6	Alya Rohani	45	80
7	Anju Pratama	55	85
8	Armansyah Nasution	40	50
9	Aulia Safura	45	65
10	Bonar Simare-mare	70	65
11	Cyndi Nurafifa	55	65
12	Devi Sakina	55	65
13	Edo Ibrahim	70	80
14	Fadhilah Azkia	85	65
15	Harith Asdah Siregar	60	50
16	Ikhwan Simatupang	40	55
17	Indah Alvia Sari	45	85
18	Irsan Aziz Pratama	80	80
19	Juhria Wardatul	65	65
20	Khoirul Rizki	40	70
21	Lenni Khairani	70	65
22	Mawaddah Siregar	50	70
23	Mhd. Aulia Pranata	60	60
24	Mhd. Sawali Raiz Hrp	40	60
25	Nabilah Putri	50	95
26	Najla Afrelia	55	95
27	Nazwah Kholilah	80	95
28	Nurjamilah Nasution	55	85
29	Nurul Afifah Najwa	75	55
30	Putra Permata Daulay	50	60
31	Rahma Dinda Daulay	50	95
32	Rangga Harahap	50	95
33	Sania Mirza Harahap	60	95
34	Sheika Al-Hasanah	80	60
35	Syadiah Azra	70	95
36	Tohar Vany Saputra	85	60
37	Widia Amanda	50	60
38	Zaskia Adha Daulay	60	60
39	Riska Yanti Harahap	65	60
Total	**2290**	**2795**	

b. Control Class

No	The Nameof Students (n)	Pre-Test	Post-Test
1	Abdul Jalil	60	55
2	Akmal Mudjakkir	65	50
3	Anggi Meylinda	55	50
4	Airyn	70	55
5	Amiruddin	45	50
6	Ar-Rahman	40	60
7	Aulia Rahman	60	60
8	Ade Rezekina	40	60
9	Ahmad Rafi	40	60
10	Bustami Arifin	50	55
11	Cinta Fitrah	75	60
12	Dian Rahmadani	55	50
13	Ega Farandi	60	60
14	Fadila Hayati	40	50
15	Ikhwansyah	85	80
16	Intan Khoirunnisa	50	60
17	Ikhsan Abdul Manan	45	60
18	Julia Amanda	45	60
19	Kaprian Anugrah	50	60
20	Line Array	75	60
21	Muhammad Farel	60	60
22	Muhammad Sazali Raiz	45	60
23	Muhammad Zaky	50	70
24	Mediana	50	60
25	Nuraini Salsabila	55	60
26	Nadia	50	65
27	Nurul Anifa	60	65
28	Neza Anastasya	75	65
29	Naila Riski	55	65
30	Rahmad Ramadan	50	70
31	Rosiana Puspita Sari	55	70
32	Rahma Wulan	50	70
33	Rizki Amanda	50	75
34	Sinta	50	75
35	Sapni Aminah	50	80
36	Syarifah Ainun	50	80
37	Thoriq Haikal	50	85
38	Widia Ayu	55	85
39	Yogi Pratama	55	95
	Total	**2120**	**2535**

Appendix 19

RESULT OF NORMALITY TEST IN PRE TEST

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

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

40	40	40	40	40	45	45	45	50	50	50	50
50	50	55	55	55	55	55	55	55	60	60	60
60	65	65	65	70	70	70	70	70	75	80	
80	80	85	85								

2. High   = 85

    Low   = 40

    Range   = High – Low

            = 85 - 40
            = 45

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

                       = 1 + 3,3 log (39)

                          = 1 + 3,3 (1.59)

                       = 1 + 5.25

                       = 6.25

                       = 6

4. Length of Classes $= \frac{range}{total of class}$ $= \frac{45}{6} = 7$

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
40 – 46	8	43	2	16	4	32
47 – 53	6	50	1	6	1	6
54 – 60	11	**57**	0	0	0	0
61 – 67	3	64	-1	-3	1	3
68 – 74	5	71	-2	-10	4	20
75 – 81	4	78	-3	-12	9	36
82 – 88	2	85	-4	-8	16	32
$i = 7$	39	-	-	-11	-	129

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

      $= 57 + 7\left(\frac{-11}{39}\right)$

      $= 57 + 7\ (-0.28)$

      $= 57 + (1.96)$

      $= 58.96$

$$SD_t = i\sqrt{\frac{\sum fx'^2}{n} - \left(\frac{\sum fx'}{n}\right)^2}$$

$$= 7\sqrt{\frac{129}{39} - \left(\frac{-11}{39}\right)^2}$$

$$= 7\sqrt{3.30 - (-0.28)^2}$$

$$= 7\sqrt{3.30 - 0.07}$$

$$= 7\sqrt{3.23}$$

$$= 7 \times 1.79 = 12.53$$

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	$\frac{(f_0 - f_h)}{f_h}$
82-88	88.5	2.71	0.4966				
				0.01	0.39	2	4.12
75-81	81.5	2.15	0.4842				
				0.03	1.17	4	2.41
68-74	74.5	1.6	0.4452				
				0.09	3.51	5	0.42
61-67	67.5	1.04	0.3508				
				0.16	6.24	3	0.12
54-60	60.5	0.48	0.1844				
				-0.29	11.31	11	-0.02
47-53	53.5	-0.06	0.47608				
				0.20	7.8	6	-0.23
40-46	46.5	-0.62	0.26763				
				0.14	5.46	8	0.46
	39.5	-1.17	0.12100				
						X^2	7.28

Based on the table above, the reseracher found that $x^2_{count} = 7.28$ while $x^2_{table} = 9.488$, cause $x^2_{count} < x^2_{table}$ (7.28< 9.488) with degree of freedom (dk) = 7–3 = 4 and significant level $\alpha = 5\%$. So distribution of VII-1 class (pre-test) is normal.

6. Median

No	Interval	F	Fk
1	40 – 46	8	8
2	47 – 53	6	14
3	**54 – 60**	**11**	25
4	61 – 67	3	28
5	68 – 74	5	33
6	75 – 81	4	37

| 7 | 82 – 88 | 2 | 39 |

Position of Me in the interval of classes is number 3, that:

Bb = 53.5

F = 6

fm = 11

i = 7

n = 39

1/2n = 19.5

So :

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

$$= 53.5 + 7 \left(\frac{19.5 - 6}{11} \right)$$

$$= 53.5 + 7 \,(1.22)$$

$$= 53.5 + 8.54$$

$$= 62.04$$

7. Modus

No	Interval	F	Fk
1	40 – 46	8	8
2	47 – 53	6	14
3	**54 – 60**	**11**	25
4	61 – 67	3	28
5	68 – 74	5	33
6	75 – 81	4	37
7	82 – 88	2	39

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

L = 53.5

d_1 = 3

d_2 = 6

i = 7

So,

$$M_o = 53.5 + \frac{3}{3+6}\, 7$$

$$= 53.5 + 0.33\,(7)$$

$$= 53.5 + 2.31$$

$$= 55.81$$

RESULT OF NORMALITY TEST IN PRE TEST

RESULT OF THE NORMALITY TEST OF VII-2 IN PRE-TEST

1. The score of VII-2 class in pre test from low score to high score:

40	40	40	40	45	45	45	45	50	50	50	50	50	50	50	50
50	50	50	50	50	55	55	55	55	55	55	55	60	60	60	60
60	65	70	75	75	75	85									

2. High $= 85$

   Low $= 40$

   Range $=$ High – Low

   $= 85 - 40$
   $= 45$

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

   $= 1 + 3,3 \log (39)$

   $= 1 + 3,3\,(1.59)$

   $= 1 + 5.247$

   $= 6.247$

   $= 6$

4. Length of Classes $= \frac{range}{total\,of\,class}$ $= \frac{45}{6} = 7$

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
40 – 46	8	43	1	8	1	8
47 – 53	13	**50**	0	0	0	0
54 – 60	12	57	-1	-12	1	12
61 – 67	1	64	-2	-2	4	4
68 – 74	1	71	-3	-3	9	9
75 – 81	3	78	-4	-12	16	48

82 – 88	1	85	-5	-5	25	25
$i = 7$	39	-	-	-26	-	106

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

$$= 50 + 7\left(\frac{-26}{39}\right)$$

$$= 50 + 7\,(-0.66)$$

$$= 50 + 4.62$$

$$= 54.62$$

$$SD_t = i\sqrt{\frac{\Sigma fx'^2}{n} - \left(\frac{\Sigma fx'}{n}\right)^2}$$

$$= 7\sqrt{\frac{106}{39} - \left(\frac{-26}{39}\right)^2}$$

$$= 7\sqrt{2.71 - (-0.67)^2}$$

$$= 7\sqrt{2.71 - 0.44}$$

$$= 7\sqrt{2.28}$$

$$= 7 \times 1.50$$

$$= 10.5$$

Table of Normality Data Test with Chi Kuadrad Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0\text{-}f_h)}{f_h}$
82-88	88.5	3.22	0.4994				
				0.0046	0.17	1	4.88
75-81	81.5	2.56	0.4948				
				0.0242	0.94	3	2.19
68-74	74.5	1.89	0.4706				
				0.0818	0.70	1	0.42
61-67	67.5	1.22	0.3888				
				0.1765	6.88	1	-0.85
54-60	60.5	0.56	0.2123				
				-0.2478	-9.66	12	-0.24
47-53	53.5	-0.10	0.46017				
				0.2395	9.34	13	0.39
40-46	46.5	-0.77	0.22065				
				0.1457	5.68	8	0.40
	39.5	-1.44	0.07493				
						X^2	7.19

Based on the table above, the reseracher found that $x^2_{count} = 7.19$ while $x^2_{table} =$ 9.488, cause $x^2_{count} < x^2_{table}$ (7.19< 9.488) with degree of freedom (dk) = 7–3 = 4 and significant level α = 5%. So distribution of VII-2 class (pre-test) is normal.

6. Median

No	Interval	F	Fk
1	40 – 46	8	8
2	**47 – 53**	**13**	21
3	54 – 60	12	33
4	61 – 67	1	34
5	68 – 74	1	35
6	75 – 81	3	38
7	82 – 88	1	39

Position of Me in the interval of classes is number 2, that:

Bb $= 46.5$

F $= 8$

fm $= 13$

i $= 7$

n $= 39$

1/2n $= 19.5$

So :

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

$$= 46.5 + 7 \left(\frac{19.5 - 8}{13} \right)$$

$$= 46.5 + 7 \ (0.88)$$

$$= 46.5 + 6.16$$

$$= 52.16$$

7. Modus

No	Interval	F	Fk
1	40 – 46	8	8
2	**47 – 53**	**13**	21
3	54 – 60	12	33
4	61 – 67	1	34
5	68 – 74	1	35
6	75 – 81	3	38
7	82 – 88	1	39

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

L $= 46.5$

$d_1 = 5$

$d_2 = 1$

$i = 7$

So,

$M_o = 46.5 + \dfrac{5}{5+1}\ 7$

$\quad = 46.5 + 0.83\ (7)$

$\quad = 46.5 + 5.81$

$\quad = 52.31$

Appendix 20

HOMOGENEITY TEST (PRE-TEST)

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

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

Hypotheses:

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

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

A. Variant of the VII-1 class is:

NO	Xi	Xi^2	NO	Xi	Xi^2
1	40	1600	21	55	3025
2	40	1600	22	60	3600
3	40	1600	23	60	3600
4	40	1600	24	60	3600
5	40	1600	25	60	3600
6	45	2025	26	65	4225
7	45	2025	27	65	4225
8	45	2025	28	65	4225
9	50	2500	29	70	4900
10	50	2500	30	70	4900
11	50	2500	31	70	4900
12	50	2500	32	70	4900
13	50	2500	33	70	4900
14	50	2500	34	75	5625
15	55	3025	35	80	6400
16	55	3025	36	80	6400
17	55	3025	37	80	6400
18	55	3025	38	85	7225
19	55	3025	39	85	7225
20	55	3025	**Total**	**2290**	**141.100**

n = 39

$\Sigma xi = 2290$

$\Sigma_{Xi} 2 = 141100$

So:

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

$$= \frac{39(141100) - (2290)^2}{39(39-1)}$$

$$= \frac{5502900 - 5244100}{39(38)}$$

$$= \frac{258800}{1482}$$

$$= 174.62887989$$

B. Variant of the VII-2 class is:

NO	Xi	Xi²	NO	Xi	Xi²
1	40	1600	21	50	2500
2	40	1600	22	55	3025
3	40	1600	23	55	3025
4	40	1600	24	55	3025
5	45	2025	25	55	3025
6	45	2025	26	55	3025
7	45	2025	27	55	3025
8	45	2025	28	55	3025
9	50	2500	29	60	3600
10	50	2500	30	60	3600
11	50	2500	31	60	3600
12	50	2500	32	60	3600
13	50	2500	33	60	3600
14	50	2500	34	65	4225
15	50	2500	35	70	4900
16	50	2500	36	75	5625
17	50	2500	37	75	5625
18	50	2500	38	75	5625
19	50	2500	39	85	7225
20	50	2500	**Total**	**2120**	**119400**

$N = 39$

$\Sigma xi = 2120$

$\Sigma xi 2 = 119400$

So:

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

$$= \frac{39(119400) - (2120)^2}{39(39-1)}$$

$$= \frac{4656600 - 4494400}{39(38)}$$

$$= \frac{162200}{1482}$$

$$= 109.44669366$$

The Formula was used to test the hypothesis was:

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

VII-1 and VII-2 :

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

So:

$$F = \frac{174.6288}{109.4466}$$

$$= 1.59$$

After doing the calculation, researcher found that $F_{count} = 1.59$. It had been compared to F_{table} with α 5% and dk = 39). From the distribution list F, researcher found that $F_{table} = 2.21$, so $F_{count} < F_{table}$ (1.59< 2.21). It could be concluded that there is no difference 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 VII-1 IN POST-TEST

1. The score of XI MIA-3 class in post test from low score to high score:

50	50	50	55	55	55	60	60	60	60	60	60	60	65
65	65	65	65	65	65	65	70	70	70	75	80	80	80
85	85	85	95	95	95	95	95	95	95	95			

2. High   = 95

    Low   = 50

    Range   = High – Low

            = 95 - 50

            = 45

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

                      = 1 + 3,3 log (39)

                      = 1 + 3,3 (1.59)

                      = 1 + 5.2

                      = 6.2

                      = 6

4. Length of Classes $= \dfrac{range}{total of class}$ $= \dfrac{45}{6} = 7$

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
50 – 56	6	53	2	12	4	24
57 – 63	7	60	1	7	1	7
64 – 70	11	**67**	0	0	0	0
71 – 77	1	74	-1	-1	1	1
78 – 84	3	81	-2	-6	4	12
85 – 91	3	88	-3	-9	9	27
92 – 98	8	95	-4	-32	16	128
$i = 7$	39	-	-	-29	-	199

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

       $= 67 + 7\left(\dfrac{-29}{39}\right)$

       $= 67 + 7\,(-0.74)$

       $= 67 + (5.18)$

       $= 72.18$

$$SD_t = i\sqrt{\frac{\sum fx'^2}{n} - \left(\frac{\sum fx'}{n}\right)^2}$$

$$= 7\sqrt{\frac{199}{39} - \left(\frac{-29}{39}\right)^2}$$

$$= 7\sqrt{5.10 - (-0.74)^2}$$

$$= 7\sqrt{5.10 - 0.54}$$

$$= 7\sqrt{4.56}$$

$$= 7 \times 2.13 = 14.91$$

Table of Normality Data Test with Chi Square Formula

Interval of Score	Real Upper Limit	Z – Score	Limit of Large of the Area	Large of area	f_h	f_0	$\frac{(f_0-f_h)}{f_h}$
92 – 98	98.5	1.76	0.4608				
				0.05	1.95	8	3.10
85 – 91	91.5	1.29	0.4019				
				0.10	3.9	3	-0.23
78 – 84	84.5	0.82	0.2939				
				0.15	5.85	3	-0.48
71 – 77	77.5	0.35	0.1368				
				-0.31	-12.0	1	0.91
64 – 70	70.5	-0.11	0.45620				
				0.17	6.63	11	0.65
57 – 63	63.5	-0.58	0.28096				
				-0.19	-7.41	7	0.05
50 – 56	56.5	-0.05	0.48006				
				0.41	11.99	6	-0.49
	49.5	-1.52	0.06426				
						X^2	3.51

Based on the table above, the reseracher found that x^2_{count} = 3.51 while x^2_{table} = 9.488, cause $x^2_{count} < x^2_{table}$ (3.51< 9.488) with degree of freedom (dk) = 7 – 3 = 4 and significant level α = 5%. So distribution of VII-1 class (post-test) is normal.

6. Median

No	Interval	F	Fk
1	50 – 56	6	6
2	57 – 63	7	13
3	**64 – 70**	**11**	24
4	71 – 77	1	25
5	78 – 84	3	28
6	85 – 91	3	31

7	92 – 98	8	39

Position of Me in the interval of classes is number 3, that:

Bb = 63.5

F = 7

fm = 11

i = 7

n = 39

1/2n = 19.5

So :

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

$$= 63.5 + 7 \left(\frac{19.5 - 7}{11} \right)$$

$$= 63.5 + 7 \, (1.13)$$

$$= 63.5 + 7.91$$

$$= 71.41$$

7. Modus

No	Interval	F	Fk
1	50 – 56	6	6
2	57 – 63	7	13
3	**64 – 70**	**11**	24
4	71 – 77	1	25
5	78 – 84	3	28
6	85 – 91	3	31
7	92 – 98	8	39

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

L = 63.5

d_1 = 4

d_2 = 10

i = 7

So,

$$M_o = 63.5 + \frac{4}{4 + 10} \, 7$$

$$= 63.5 + 0.28 \, (7)$$

= 63.5 + 1.96

= 65.46

RESULT OF THE NORMALITY TEST OF VII-2 IN POST-TEST

1. The score of XI MIA-4 class in pre test from low score to high score:

50	50	50	50	50	55	55	55	60	60	60	60	60	60	60	60
60	60	60	60	60	60	65	65	65	65	70	70	70	70	75	75
80	80	80	85	85	85	95									

2. High   = 95

   Low   = 50

   Range   = High – Low

          = 95 - 50
          = 45

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

          = 1 + 3,3 log (39)

          = 1 + 3,3 (1.59)

          = 1 + 5.24

          = 6.24

          = 6

4. Length of Classes $=\dfrac{range}{total of class}$ $=\dfrac{45}{6}= 7$

5. Mean

Interval Class	F	X	x'	fx'	x'^2	fx'^2
50 – 56	8	53	1	8	1	8
57 – 63	14	**60**	0	0	0	0
64 – 70	8	67	-1	-8	1	8
71 – 77	2	74	-2	-4	8	16
78 – 84	3	81	-3	-9	27	81
85 – 91	3	88	-4	-12	48	144
92 – 98	1	95	-5	-5	25	25
$i = 7$	39	-	-	-30	-	282

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

$$= 60 + 7(\frac{-30}{39})$$

$$= 60 + 7 (-0.76)$$

$$= 60 + (5.32)$$

$$= 65.32$$

$$SD_t = i\sqrt{\frac{\sum fx\prime^2}{n} - \left(\frac{\sum fx\prime}{n}\right)^2}$$

$$= 7\sqrt{\frac{282}{39} - \left(\frac{-30}{39}\right)^2}$$

$$= 7\sqrt{7.23 - (-0.76)^2}$$

$$= 7\sqrt{7.23 - (0.57)}$$

$$= 7\sqrt{6.66}$$

$$= 7 \times 2.58 = 18.06$$

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	$\frac{(f_0-f_h)}{f_h}$
92 – 98	98.5	1.83	0.4664				
				0.04	1.56	1	-0.35
85 – 91	91.5	1.44	0.4251				
				0.06	2.34	3	0.28
78 – 84	84.5	1.06	0.3554				
				0.10	3.9	3	-0.23
71 – 77	77.5	0.67	0.2486				
				0.13	5.07	2	-0.60
64 – 70	70.5	0.28	0.1103				
				-0.34	-13.2	8	0.39
57 – 63	63.5	-0.10	0.46017				
				0.14	5.46	14	1.56
50 – 56	56.5	-0.48	0.31561				
				0.12	4.68	8	0.70
	49.5	-0.87	0.19215				
						X^2	1.75

Based on the table above, the reseracher found that $x^2_{count} = 1.75$ while $x^2_{table} = 9.488$, cause $x^2_{count} < x^2_{table}$ (1.75< 9.488) with degree of freedom (dk) = 7–3 = 4 and significant level $\alpha = 5\%$. So distribution of VII-2 class (post-test) is normal.

6. Median

No	Interval	F	Fk
1	50 – 56	8	8
2	57 – 63	**14**	22
3	64 – 70	8	30
4	71 – 77	2	32
5	78 – 84	3	35

| 6 | 85 – 91 | 3 | 38 |
| 7 | 92 – 98 | 1 | 39 |

Position of Me in the interval of classes is number 2, that:

Bb $= 56.5$

F $= 8$

fm $= 14$

i $= 7$

n $= 39$

1/2n $= 19.5$

So :

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

$$= 56.5 + 7 \left(\frac{19.5 - 8}{14} \right)$$

$$= 56.5 + 7 \ (0.82)$$

$$= 56.5 + 5.74$$

$$= 62.24$$

7. Modus

No	Interval	F	Fk
1	50 – 56	8	8
2	57 – 63	**14**	22
3	64 – 70	8	30
4	71 – 77	2	32
5	78 – 84	3	35
6	85 – 91	3	38
7	92 – 98	1	39

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

L $= 56.5$

$d_1 = 6$

$d_2 = 6$

i $= 7$

So,

$$M_o = 56.5 + \frac{6}{6+8} 7$$

$$= 56.5 + 0.42 \ (7)$$

= 56.5 + 2.94

= 59.44

Appendix 22

HOMOGENEITY TEST (POST-TEST)

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

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

Hypotheses:

H$_0$: $\delta_1^2 = \delta_2^2$

H$_1$: $\delta_1^2 \neq \delta_2^2$

A. Variant of the VII-1 class is:

NO	Xi	Xi^2	NO	Xi	Xi^2
1.	50	2500	21.	65	4225
2.	50	2500	22.	70	4900
3.	50	2500	23.	70	4900
4.	55	3025	24.	70	4900
5.	55	3025	25.	75	5625
6.	55	3025	26.	80	6400
7.	60	3600	27.	80	6400
8.	60	3600	28.	80	6400
9.	60	3600	29.	85	7225
10.	60	3600	30.	85	7225
11.	60	3600	31.	85	7225
12.	60	3600	32.	95	9025
13.	60	3600	33.	95	9025
14.	65	4225	34.	95	9025
15.	65	4225	35.	95	9025
16.	65	4225	36.	95	9025
17.	65	4225	37.	95	9025
18.	65	4225	38.	95	9025
19.	65	4225	39.	95	9025
20.	65	4225	**Total**	**2795**	**204.750**

n = 39

$\Sigma xi = 2795$

$\Sigma_{Xi} 2 = 204750$

So:

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

$$= \frac{39(204750) - (2795)^2}{39(39-1)}$$

$$= \frac{7985250 - 7812025}{39(38)}$$

$$= \frac{173225}{1482}$$

$$= 116.88596491$$

B. Variant of the VII-2 class is:

NO	Xi	Xi²	NO	Xi	Xi²
1.	50	2500	21.	60	3600
2.	50	2500	22.	60	3600
3.	50	2500	23.	65	4225
4.	50	2500	24.	65	4225
5.	50	2500	25	65	4225
6.	55	3025	26.	65	4225
7.	55	3025	27.	70	4900
8.	55	3025	28.	70	4900
9.	60	3600	29.	70	4900
10.	60	3600	30.	70	4900
11.	60	3600	31.	75	5625
12.	60	3600	32.	75	5625
13.	60	3600	33.	80	6400
14.	60	3600	34.	80	6400
15.	60	3600	35.	80	6400
16.	60	3600	36.	85	7225
17.	60	3600	37.	85	7225
18.	60	3600	38.	85	7225
19.	60	3600	39.	95	9025
20.	60	3600	Total	2535	169.625

N = 39
$\Sigma xi = 2535$
$\Sigma xi\,2 = 169625$

So:

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

$$= \frac{39(169625) - (2535)^2}{39(39-1)}$$

$$= \frac{6615375 - 6426225}{39(38)}$$

$$= \frac{189150}{1482}$$

$$= 127.63157895$$

The Formula was used to test the hypothesis was:

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

VII-1 and VII-2 :

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

So:

$$F = \frac{127.63}{116.88}$$

$$= 1.09$$

After doing the calculation, researcher found that $F_{count} = 1.09$. It had been compared to F_{table} with α 5% and dk numerator $n_1-1 = 39-1 = 38$ and deminator $n_2-1 = 39-1 = 38$). Researcher found that $F_{table} = 2.27$. From the distribution list F, researcher found that $F_{table} = 2.27$, so $F_{count} < F_{table}$ (1.09< 2.27). It could be concluded that there is no difference variant between the VII-1 class and VII-2 class. It means that the variant is homogenous.

Appendix 23

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:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt[5]{\frac{1}{n_1} + \frac{1}{n_2}}} \quad \text{with } S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

So:

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

$$= \sqrt{\frac{(39 - 1)(174.6288) + (39 - 1)(109.4466)}{39 + 39 - 2}}$$

$$= \sqrt{\frac{38(174.6288) + 38(109.4466)}{76}}$$

$$= \sqrt{\frac{6.635.56 + 4.158.97}{76}}$$

$$= \sqrt{\frac{4.165.6}{76}}$$

$$= \sqrt{54.81}$$

$$= 7.64$$

So:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt[5]{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$= \frac{58.96 - 54.62}{\sqrt[7.64]{\frac{1}{39} + \frac{1}{39}}}$$

$$= \frac{4.34}{\sqrt[7.64]{0.02 + 0.02}}$$

$$= \frac{4.34}{\sqrt[7.64]{0.04}}$$

$$= \frac{4.34}{0.35}$$

$$= 1.24$$

Based on researcher calculation result of homogeneity test of the both averages, researcher found that $t_{count}= 1.24$ with opportunity $(1-\alpha) = 1 - 5\% = 95\%$ and dk $= n_1 + n_2 - 2 = 39+39-2 = 76$, researcher found that $t_{table} = 2.617$. So, $t_{count}<t_{table}$ (1.24 <2.617) and H_a is accepted, it means there was difference the average between the first class as experimental class and the second class as control class in this research.

Appendix 24

T-test ofthe Both Averages in Post-Test

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

$$t = \frac{\overline{X}_1 - \overline{X}_2}{5\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}} \quad \text{with } S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

So:

$$
\begin{aligned}
S &= \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}} \\[2mm]
&= \sqrt{\frac{(39 - 1)(116.88) + (39 - 1)(127.63)}{39 + 39 - 2}} \\[2mm]
&= \sqrt{\frac{38(116.88) + 38(127.63)}{76}} \\[2mm]
&= \sqrt{\frac{4.441.44 + 4.849.94}{76}} \\[2mm]
&= \sqrt{\frac{448.993}{76}} \\[2mm]
&= \sqrt{5.90} \\[2mm]
&= 2.42
\end{aligned}
$$

So:

$$
\begin{aligned}
t &= \frac{\overline{X}_1 - \overline{X}_2}{5\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}} \\[3mm]
&= \frac{72.18 - 65.32}{2.42\sqrt{\dfrac{1}{39} + \dfrac{1}{39}}} \\[3mm]
&= \frac{6.86}{2.42\sqrt{0.02 + 0.02}}
\end{aligned}
$$

$$= \frac{6.86}{\sqrt[2.42]{0.04}}$$

$$= \frac{6.86}{0.48}$$

$$= 14.2$$

Based on researcher calculation result of homogeneity test of the both averages, researcher found that t_{count}= 14.2 with opportunity $(1\text{-}\alpha) = 1 - 5\% = 95\%$ and dk = $n_1 + n_2 - 2$ = 39+39-2 = 76, researcher found that t_{table} = 2.617. So, t_{count}>t_{table}(14.2 >2.617) and H_a is accepted, it means there was the difference average or significant effect using Word Wall Media between the first class as experimental class and the second class as control class in this research.

Appendix 25

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 26

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

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-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 27

Percentage Points of the t Distribution

Pr	0.25	0.10	0.05	0.025	0.01	0.005	0.001
df	0.50	0.20	0.10	0.050	0.02	0.010	0.002
1	1.00000	3.07768	6.31375	12.70620	31.82052	63.65674	318.30884
2	0.81650	1.88562	2.91999	4.30265	6.96456	9.92484	22.32712
3	0.76489	1.63774	2.35336	3.18245	4.54070	5.84091	10.21453
4	0.74070	1.53321	2.13185	2.77645	3.74695	4.60409	7.17318
5	0.72669	1.47588	2.01505	2.57058	3.36493	4.03214	5.89343
6	0.71756	1.43976	1.94318	2.44691	3.14267	3.70743	5.20763
7	0.71114	1.41492	1.89458	2.36462	2.99795	3.49948	4.78529
8	0.70639	1.39682	1.85955	2.30600	2.89646	3.35539	4.50079
9	0.70272	1.38303	1.83311	2.26216	2.82144	3.24984	4.29681
10	0.69981	1.37218	1.81246	2.22814	2.76377	3.16927	4.14370
11	0.69745	1.36343	1.79588	2.20099	2.71808	3.10581	4.02470
12	0.69548	1.35622	1.78229	2.17881	2.68100	3.05454	3.92963
13	0.69383	1.35017	1.77093	2.16037	2.65031	3.01228	3.85198
14	0.69242	1.34503	1.76131	2.14479	2.62449	2.97684	3.78739
15	0.69120	1.34061	1.75305	2.13145	2.60248	2.94671	3.73283
16	0.69013	1.33676	1.74588	2.11991	2.58349	2.92078	3.68615
17	0.68920	1.33338	1.73961	2.10982	2.56693	2.89823	3.64577
18	0.68836	1.33039	1.73406	2.10092	2.55238	2.87844	3.61048
19	0.68762	1.32773	1.72913	2.09302	2.53948	2.86093	3.57940
20	0.68695	1.32534	1.72472	2.08596	2.52798	2.84534	3.55181
21	0.68635	1.32319	1.72074	2.07961	2.51765	2.83136	3.52715
22	0.68581	1.32124	1.71714	2.07387	2.50832	2.81876	3.50499
23	0.68531	1.31946	1.71387	2.06866	2.49987	2.80734	3.48496
24	0.68485	1.31784	1.71088	2.06390	2.49216	2.79694	3.46678
25	0.68443	1.31635	1.70814	2.05954	2.48511	2.78744	3.45019
26	0.68404	1.31497	1.70562	2.05553	2.47863	2.77871	3.43500
27	0.68368	1.31370	1.70329	2.05183	2.47266	2.77068	3.42103
28	0.68335	1.31253	1.70113	2.04841	2.46714	2.76326	3.40816
29	0.68304	1.31143	1.69913	2.04523	2.46202	2.75639	3.39624
30	0.68276	1.31042	1.69726	2.04227	2.45726	2.75000	3.38518
31	0.68249	1.30946	1.69552	2.03951	2.45282	2.74404	3.37490
32	0.68223	1.30857	1.69389	2.03693	2.44868	2.73848	3.36531
33	0.68200	1.30774	1.69236	2.03452	2.44479	2.73328	3.35634
34	0.68177	1.30695	1.69092	2.03224	2.44115	2.72839	3.34793
35	0.68156	1.30621	1.68957	2.03011	2.43772	2.72381	3.34005
36	0.68137	1.30551	1.68830	2.02809	2.43449	2.71948	3.33262
37	0.68118	1.30485	1.68709	2.02619	2.43145	2.71541	3.32563
38	0.68100	1.30423	1.68595	2.02439	2.42857	2.71156	3.31903
39	0.68083	1.30364	1.68488	2.02269	2.42584	2.70791	3.31279
40	0.68067	1.30308	1.68385	2.02108	2.42326	2.70446	3.30688

Percentage Points of the t Distribution

Pr df	0.25 0.50	0.10 0.20	0.05 0.10	0.025 0.050	0.01 0.02	0.005 0.010	0.001 0.002
41	0.68052	1.30254	1.68288	2.01954	2.42080	2.70118	3.30127
42	0.68038	1.30204	1.68195	2.01808	2.41847	2.69807	3.29595
43	0.68024	1.30155	1.68107	2.01669	2.41625	2.69510	3.29089
44	0.68011	1.30109	1.68023	2.01537	2.41413	2.69228	3.28607
45	0.67998	1.30065	1.67943	2.01410	2.41212	2.68959	3.28148
46	0.67986	1.30023	1.67866	2.01290	2.41019	2.68701	3.27710
47	0.67975	1.29982	1.67793	2.01174	2.40835	2.68456	3.27291
48	0.67964	1.29944	1.67722	2.01063	2.40658	2.68220	3.26891
49	0.67953	1.29907	1.67655	2.00958	2.40489	2.67995	3.26508
50	0.67943	1.29871	1.67591	2.00856	2.40327	2.67779	3.26141
51	0.67933	1.29837	1.67528	2.00758	2.40172	2.67572	3.25789
52	0.67924	1.29805	1.67469	2.00665	2.40022	2.67373	3.25451
53	0.67915	1.29773	1.67412	2.00575	2.39879	2.67182	3.25127
54	0.67906	1.29743	1.67356	2.00488	2.39741	2.66998	3.24815
55	0.67898	1.29713	1.67303	2.00404	2.39608	2.66822	3.24515
56	0.67890	1.29685	1.67252	2.00324	2.39480	2.66651	3.24226
57	0.67882	1.29658	1.67203	2.00247	2.39357	2.66487	3.23948
58	0.67874	1.29632	1.67155	2.00172	2.39238	2.66329	3.23680
59	0.67867	1.29607	1.67109	2.00100	2.39123	2.66176	3.23421
60	0.67860	1.29582	1.67065	2.00030	2.39012	2.66028	3.23171
61	0.67853	1.29558	1.67022	1.99962	2.38905	2.65886	3.22930
62	0.67847	1.29536	1.66980	1.99897	2.38801	2.65748	3.22696
63	0.67840	1.29513	1.66940	1.99834	2.38701	2.65615	3.22471
64	0.67834	1.29492	1.66901	1.99773	2.38604	2.65485	3.22253
65	0.67828	1.29471	1.66864	1.99714	2.38510	2.65360	3.22041
66	0.67823	1.29451	1.66827	1.99656	2.38419	2.65239	3.21837
67	0.67817	1.29432	1.66792	1.99601	2.38330	2.65122	3.21639
68	0.67811	1.29413	1.66757	1.99547	2.38245	2.65008	3.21446
69	0.67806	1.29394	1.66724	1.99495	2.38161	2.64898	3.21260
70	0.67801	1.29376	1.66691	1.99444	2.38081	2.64790	3.21079
71	0.67796	1.29359	1.66660	1.99394	2.38002	2.64686	3.20903
72	0.67791	1.29342	1.66629	1.99346	2.37926	2.64585	3.20733
73	0.67787	1.29326	1.66600	1.99300	2.37852	2.64487	3.20567
74	0.67782	1.29310	1.66571	1.99254	2.37780	2.64391	3.20406
75	0.67778	1.29294	1.66543	1.99210	2.37710	2.64298	3.20249
76	0.67773	1.29279	1.66515	1.99167	2.37642	2.64208	3.20096
77	0.67769	1.29264	1.66488	1.99125	2.37576	2.64120	3.19948
78	0.67765	1.29250	1.66462	1.99085	2.37511	2.64034	3.19804
79	0.67761	1.29236	1.66437	1.99045	2.37448	2.63950	3.19663
80	0.67757	1.29222	1.66412	1.99006	2.37387	2.63869	3.19526
∞							

Appendix 28

RESEARCH DOCUMENTATION
PRE TEST OF EXP. CLASS

PRE TEST OF CONTROL CLASS

TEACHING BY USING WORD WALL MEDIA

POST TEST OF EXP. CLASS

POST TEST CONTROL CLASS