#### **CHAPTER II**

#### REVIEW OF RELATED LITERATURE

This chapter presents related studies, cooperative learning, vocabulary, talking stick method, Quasy experimental design, definition of T-test.

#### A. Related Studies

There are some studies related with the topic:

FirstIrfatul Aini(2010),Foundthat the *talking stick* method can increase the students learning activities in Junior High School 1 of Singosari Malang. It is different from this study. In this study the writer focussed on the effect of talking stick method toward the students' vocabulary size.<sup>1</sup>

SecondRahayu Ningsih (2012), Found that the use of Talking stick method in improving Student's Vocabulary Mastery of Second Grade Students SMPN-3 Salatiga, can improve the student's vocabulary mastery.<sup>2</sup>

Third was conducted by Widya Sari (2015) also gives some literatures in this final paper; she succeeds inimfluence students' speaking ability trought *Talking Stick Technique* in her research.<sup>3</sup>

<sup>&</sup>lt;sup>1</sup>Irfatul Aini, Application of Innovative Instruction Model by means of the Talking Stick Method to Improve the Students Learning Activity on the Integrated Social Studies Subject Matter of VIIth Grade of the State Junior High School 1 of Singosari Malang 2010/2011, (Malang: UIN Malang, 2010)

<sup>&</sup>lt;sup>2</sup>Rahayu Ningsih, Improving Student's Vocabulary Mastery through Talking Stick Method for second grade students of SMPN 3 Salatiga in the Academic year of 2012/2013( Salatiga: STAIN Salatiga,Thesis 2013)

<sup>&</sup>lt;sup>3</sup> Widya Sari, The Imfluence of Using Talking Stick Technique to the Speaking Ability of Eleventh Grade Students at SMAN 1 Gondang Nganjuk In Academic 2014/2015 (Kediri: Universitas PGRI Kediri, 2015)

Fourth is a study by Ugi Sugiarto (2014). that the talkingstick gamecan. Improving the students' speaking skillat the eighth grade of SMP Negeri 2 Depok Kabupaten Cirebon.<sup>4</sup>

Last is the study by Febryanti, Dita Indra (2015). Found that the The Use of Talking Stick was effective to Improving Students' Speaking Skill (A Classroom Action research on X MIA-2 Students of SMA Negeri 1 Kesamben).<sup>5</sup>

Based on the previous studies above, the writer does the different study, in this case the writer have different subject and object of the study, in this study the writer's subject is the student of eleventh grade students of MAN MODEL Palangka Raya and the writer object will teaching vocabulary size using talking stick method and without talking stick method.

In this study the writer focussed to measure the effectiveness of using Talking Stick method in teaching Vocabulary size at MAN MODEL Palangka Raya. Same with those previous study above, the writer interested in inquring further vocabulary teaching strategy by cooperative as a technique. The differences, this study focuses on the teaching method using Talking stick method used by the English teacher in teaching vocabulary. In this case, it's about how the activities of the method and how the effectiveness of the method using talking stick method by

<sup>&</sup>lt;sup>4</sup>Ugi Sugiarto, *Improving the students' speaking skill using talking stick game at the eighth grade of SMP Negeri 2 Depok Kabupaten Cirebon*. (Cirebon: Universitas Swadaya Gunung Jati, 2014).

<sup>&</sup>lt;sup>5</sup>Febryanti, Dita Indra. *The Use of Talking Stick to Improving Students' Speaking Skill (A Classroom Action research on X MIA-2 Students of SMA Negeri 1 Kesamben)*. (Brawijaya: Universitas Brawijaya, 2015).

the teacher to teach vocabulary size. This study also focused on experimental study.

## **B.** Cooperative Learning

## 1. The Understanding of Cooperative Learning

Cooperative learning is a strategy for the classroom that is use to increase student's communication, group interaction, individual responsibility, and also to promote academic helpfulness. It involves students' interaction.<sup>6</sup> This situation make the lees teacher center and helps students to understand the material easier because they can ask other students to solve the problem together.

There are some techniques in Cooperative Learning, such as Students' Team Achievement Division (STAD), Jigsaw, Team Games Tournament (TGT), Team Accelerated Instruction (TAI), and Cooperative Integrated Reading and Composition (CIRC) and so on.<sup>7</sup>

## 2. Basic Elements of Cooperative Learning

Cooperative learning Emphasize that learning environment in this approach should be leaner centered and leaner directed; learners can be

<sup>&</sup>lt;sup>6</sup>Richard Arends, E.g. *Exploring Teaching an Introduction to Education*, (New York:Mc-Graw-hill,1998),p. 196

<sup>&</sup>lt;sup>7</sup>Robert E. Slavin, *Cooperative Learning: Teori, riset and praktik* (Bandung: Nusa Media, 2009)p.11.

teachers; and teachers are facilitators rather that the source of all knowledge.

Lie in Made Wena (Strategi Pembelajaran Inovatif Kontemporer) mentions
some elements of Cooperative Learning, They are:

- Positive interdependence
- Face to face interaction
- Individual accountability
- Social skill<sup>8</sup>

## a. Positive Interdependence

In Wena, Lie expressed positive interdependence happens in Cooperative Learning When group members Feel that they have to help each other and need each other. In other world, it just likes a mutualism symbiosis

#### b. Face to face interaction

Lie in Tukiran's book argued that face interactions mean that the members of the groups should meet directly face to face in order to do some discussions toward the topic of the learning.<sup>9</sup>

## c. Individual Accountability

Olsen and Kaga in Richards and Rogers said that individual accountability is developed trough activities which require students to concern

<sup>9</sup>TurkanTaniredja, EflMiftahFaridli and sriHarmianto, *Model-model pembelajaran Inovatif*, (Bandung: Alfabeta,2011), p. 58

<sup>&</sup>lt;sup>8</sup>Made Wena, *Strategi Pembelajaran Inovatif kontemporer*, (Jakarta: Bumi Aksara 2009), 2<sup>nd</sup> edition, p.190

their participation in group, by assigning his or her task of a team project and he or she should do the best for the group's achievement.

#### d. Social Skill

In Cooperative Learning every member of the group need to develop not only linguistic but also social skill which can facilitate teamwork, create trust and enhance communication, leadership, problem-solving, and decision-making in group interaction. Students need to learn how they work in a team an how to help each other. It will be found many ideas in the groups and members should respect other members' ideas do not dominate others, criticize the idea criticize the one who give the idea.

Thus, all of the group members have the same goal and word together toreach their goals

## C. Vocabulary

#### 1. The Nature of Vocabulary

In some literature, we found the meaning of vocabulary. Vocabulary is a list of words, with definitions or translations, used in a language, a particular book, a special branch of study,etc.<sup>10</sup>

Vocabulary is a great skill of knowledge about a set of words known by a person as a part of specific language. Vocabulary is one of the most obvious components of language and one of first things applies linguistics turned their attention. On the other hand, vocabulary is the stock of word used by people or

<sup>&</sup>lt;sup>10</sup>AS Hornby, Oxford Advanced Learners' Dictionary (London: Oxford University Press. 1897), p.1440.

particular uses or person, or a list of collection of the word of a language, book, author and branch of science or the like, in alphabetical order and defined. Vocabulary is one of the aspects of language besides grammar and pronunciation.<sup>11</sup>

Vocabulary is crucial to language acquisition. An adequate vocabulary is essential for successful second language uses the structures and function which we may have learned for comprehensible communication .vocabulary is a powerful carrier of meaning. Beginners often manage to communicate in English by using the accumulative effect of individual word. A good knowledge of grammar, on the order hand is not such a powerful tool. Moreover, "research has established a close correlation between vocabulary and intelligence". <sup>12</sup>

Studentsare identified as that superior mental ability if she/he has good vocabulary. It means that she/he has done wide reading since reading is the principal way of developing a good vocabulary. It enables students to find new word and their meaning in different context. By reading much, their vocabulary will develop greatly

## 2. Kinds of Vocabulary

In English, vocabulary should be comprehended by the teacher before giving it to the students. Vocabular is the one of the most important aspect of

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<sup>12</sup>Agussuratno, *The Implementasion of whole language model in teaching vocabulary at the eigth year students of SMP 2 of palagnkaraya* (Thesis 2012)

<sup>&</sup>lt;sup>11</sup>Fauziati, Endang (2005), teaching of English as a foreign language.USA: the university of Michigan

the foreign language learning. Further, vocabulary is the meaning associated with spelling word, the focus in the meaning. So the learners have to know about vocabulary if th want to get success in their learning language. According to Thornbury, there are kinds of vocabulary, such as:<sup>13</sup>

## **a.** Function Words (Gramatical Words)

Function Words (Grammatical Word) are A word that expresses a grammatical relationship. Also known as a grammatical word. Function words include determiners, conjunctions, and prepositions. Contrast with content word. <sup>14</sup>

#### 1). Prepositions

Prepositions are words or group of words that is used to show the way in which other words are connected. Example. For, of, in etc.

## 2). Conjunctions

Conjunctions are words the connect sentences, phrases or clausses. Example. And, so, but, etc.

## 3). Determiners

Determiners are definite article, indefinite article, possessives, demonstrate, and quantifiers. Example. The, a, an, my, this, some, etc.

# 4). Pronoun

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<sup>&</sup>lt;sup>13</sup>Scoot Thornbury. How to teach Vocabulary. England: Pearson Education Limited, 2002. P.4

<sup>&</sup>lt;sup>14</sup>Content Words and Function Words. 2011

Pronoun is a word that used in place of a noun or noun phrases. Example. Her, she, they, etc.

Table 2.1 **Example of function words** 

Auxiliary verbs	Verbs that support the	am, are, has, could,
	main verbs	should
Pronouns	Words that replace nouns	I, it, we, they, he, she

# **b.** Content Words (lexical words)

Conten word is word that conveys information in a text or speech act. Also known as a *lexical word*. Content words which include nouns, lexical verbs, adjectives, and adverbs belong to *open classes* of words: that is, new members are readily added. Contrast with function word. <sup>15</sup>

#### 1). Nouns

Nouns are words or group of words that is the name of a person, a place, a thing or activity or a quality or idea; nouns can be used as the subject or object of a verb. Example, Eleanor, book. Etc.

## 2). Verbs

<sup>15</sup> Content Words and Function Words. 2011 http://www.pronuncian.com/lessons/default.aspx?lesson=58.html. (Online) (Accessed on juny 01,2016). Verbs are words or group of words which is used in describing an action, experience or state. Example, write, ride, ec.

# 3). Adjebtives

Adjebtives are word that give more information about noun or pronoun. Example, kind, better, etc.

## 4). Adverbs

Adverbs are words or group of words that describer or adds to the meaning of a verbs, adjebtive, another adverb, or a whole sentence. Example, carefully, at home, etc. <sup>16</sup>

Example:

Table 2.2 **Example of content words** 

Nouns	People, places, things, and	Patty, seattle, cars,
	ideas	happines
Mains verbs	Verbs without auxiliaries	Ran, swim, thinks
Adjebtives	Word that describe nouns	Red, soft, careful
Adverbs (except adverbs	Words that describe nouns	Calmly, quickl, carefully
of frequency)		

<sup>&</sup>lt;sup>16</sup>Jeremy Harmer, *How To Teach English*, England: Pearson Education Limited, 2001,P.37

Based on explanation above the writer generally focuse on content word.

But, especially focuse on noun, verb, and adjective. So the kind of vocabulary should be related on the material of school.

## 3. The Use of Vocabulary

Vocabulary is very important in case it could help the students to enjoy their classes. One who masters enough vocabulary will find fewer difficulties than those who have fewer vocabularies. Mastery of vocabulary will be useful for the process achieve language teaching objectives. That is the mastery of language skills (Listening, Speaking, Reading, and Writing).

These are the reasons why vocabulary is important:

- a. An extensive vocabulary aids expression and communication.
- b. A person may be judged by others based on his or her vo

## 4. Level of Vocabulary

According to Nation in his book "Teaching and Learning Vocabulary", in Esna states that teaching vocabulary is directly related to some other language activities. If learners need to cover the whole range of language skills, a productive vocabulary of around 3000 base words and large receptive vocabulary are needed. However, teaching vocabulary to young learner isn't just simply presenting some words, but it has significant influence to the four

language skills.<sup>17</sup> Scott Thornbury state that they are seventh level of vocabulary such as:<sup>18</sup>

Table 2.3 **Level of Vocabulary** 

LEVEL	WORDS
Easy starts	200 Words
Level One Beginner	300 Words
Level Two Beginner	600 Words
Level Three Pre-Intermediate	1.200 Words
Level Four Intermediate	1.700 Words
Level Five Upper-Intermediated	2.300 Words
Level Six Advanced	3000 words

#### 5. Content Words

The large body "content" words constitutes the fourth group of vocabulary items and the chief material usually considered when the

<sup>&</sup>lt;sup>17</sup>EsnaHallatunNisa, "A Study On English Vocabulary Teaching Techniques to Fourth and Fifth Grade Students Of SD Plus DarulUlumJombang Academic Year 2008/2009, Thesiss of State Institue for Islamic Studies of English Department Faculty of Tarbiyah, Surabaya: SunanAmpel State Institue for Islamic studies, 2009, p. 3 available at http://cak-umam.blogspot.com/2011/11/skripsi-satu-pembahasan-pada-pengajaran.html (accessed on 28 August 2015, 10:25 wib)

<sup>&</sup>lt;sup>18</sup>Scott Thornbury, *How to Teach Vocabulary*, England: Pearson Education Limited, 2002, p.59

vocabulary of a language is discussed. These are the words that functions as symbols for the phenomena which we react upon as the world of reality about us, symbol for "thing", for "action" and for "qualities".

## 6. Remembering Words

There is no point in studying new words if they are not remembered. Many students record newly learned word in long lists in their files or exercise books. In many cases, these lists are disorganizes and are often never looked at again after they have been written. Moreover, states that remembering involves four things: putting into storage, keeping in storage, retrieving an using.

# D. Vocabulary size

Vocabulary size is the number of words that a person knows.<sup>19</sup> Vocabulary size is the worst researched area in applied linguistics. This is no because of lack of interest in vocabulary size but because the methodology involved i measuring vocabulary size was so badly worked out. In this paper I will look at why it is important for teaching and research to have good measures of vocabulary size, the methodology of measuring vocabulary size, and possible research agenda for measuring vocabulary size in an ncommonly taught language.

Vocabulary size is number of words that an engine is able to recognize a large a factor in its recognition accuracy. Vocabulary size is used to know student

<sup>&</sup>lt;sup>19</sup> Lecture notes, *Vocabulary Size*, (online) URL: http://engres.ied.edu.hk/vocabulary/vocabulary2-3.html (Accessed on May, 21nd 2016)

master in vocabulary and provide some indication of the size of the learning task facing second language learners.

There are many options about how much students mush master vocabulary. But bome of them deal that for beginner of hight school. They must master at least 1000 - 3000 words. Charles Key Ogden created "Basic English" (850 words). Other list include "Simplified English" (1000 words), "Spesial english" (1500 words). Even Mackey said that the total of word which uses in communicate in daily life is only about 2000 word. And mackey also said that the limited of people is depends on their education level.

The learners need to know about 3000 or so high frequency words of the language. There is an immediate hight priority and there is little sense in focusing on the other vocabulary until these are well learned. What the teacher does next is on helping the learners develop strategies to comprehend and learn the low frequency words of the language.

## E. Teaching Vocabulary

Teaching vocabulary is a process of way to students to learn about vocabulary. There are various ways to teaching vocabulary but there is no single best way for teaching vocabulary. it is because every way or technique used in teaching vocabulary has its own specific strong point. And than, it is also has a weakness. Therefore, it is teacher's to find or choose a better technique that is suitable to students' condition.

Like Finocchiaro, Wallece in Nurapeni also give some suggestions concern to teaching vocabulary principle. There are:

- 1. The teacher has to decide the aim of teaching and she has to many items she expects all the students to able to understand.
- The teacher has to decide the quantity of vocabulary that the teacher wants to teach after the teacher decide what kind of vocabulary is involved vocabulary learning.
- 3. Course book or syllabus should be a basis in making the choice of vocabulary item.
- 4. There has to be a certain amount of repetition of the new words.
- 5. The presentation of vocabulary should be meaningful.
- 6. The presentation should be created in which the studnets can learn the word in the where are appropriate.

Nation stated that good vocabulary teaching technique should do the following things:

- 1. It should interest the learners.
- 2. It takes the learners give to the form meaning or use of word,
- 3. It gives a chance for a cetain amount of repetition.
  - He also proposes the way of presenting new vocabulary as follow:
- Demonstrating. For example: showing the object, having gesture or performing an action.

- 2. Picture. For exmple: photograph, blackboard draiwing, illustration or picture frome the book.
- 3. Explanation. For example: giving description, synonym, and antonym, putting the word in definition context in by using translation.<sup>20</sup>

# F. The Importance of Vocabulary in English Language Teaching.

Vocabulary is obviously a very important element within a language as the overwhelming majority of meaning is carried lexically and the reform, something to be taken into consideration both in second and foreign language teaching although not the only one that coveys meaning. Learning a language cannot be reduced, of course, to only learning vocabulary, but it is also true that no matter how well the students learn grammar, no matter how successfully the sound of L2 are mastered, without words to express a wide range of meanings, communication in an L2 just cannot happen in any meaningful way.<sup>21</sup>

According to Rivers in David Nunan argued that the acquisition of an adequate vocabulary is essential for successful second language use because without an extensive vocabulary, we will be unable to use the structures and functions we may have learned for comprehensible communication. Lewis argues

<sup>21</sup> Rosa M. Lopez Campillo, *Teaching and Learning Vocabulary: An introduction for English Students*, 1986. P.36.

<sup>&</sup>lt;sup>20</sup> Nation, Language teaching technique, Willington, Victoria University Press.

that vocabulary should be at the centre of language teaching, because language consists of grammatical lexis, not lexicalized grammar.<sup>22</sup>

Other opinion, John learning vocabulary is a very important part of learning English. If you make a grammar mistake it maybe "wrong" but very often people will understand us anyway. But if we don't know the exact word that we need, it is very frustrating for us, and the person whom are talking to. Good English means having a big vocabulary. So, the first step to learn English that important is learning vocabulary.

The importance of vocabulary development or mastery development in learning a foreign language, student must devote part of their time to learn vocabulary items, to foreign language students, like Indonesian students, learning vocabulary needs special efforts because English is very much different from students' native language and their national language.

From explanation above can be concluded that vocabulary is primary step in language learning and second language acquisition. Vocabulary also plays an important role in English skills (listening, reading, speaking and writing) and content (grammar).

#### G. Talking Stick Method

# 1. The Understanding of Talking Stick Method

<sup>&</sup>lt;sup>22</sup> Daviid Nunan, Language Teaching Methodology ( a text book for teachers), Hertfordshire: Prentice Hall 1995 p. 177

<sup>&</sup>lt;sup>23</sup> John Flower, Build Your Vocabulary 3, Hove: Language Teaching Publications, 1994,p.5

Talking stick or "tongkat berbicara" is a kind of methods used in Americans to invite all the people speak and extend their opinions in an ethnic group meeting. For long times ago, Indian ethnics are used this method as a good and wise facilitation without taking side each others. Talking stick is used by the councils to decide who will have the right to speak up. When the leader starts in the discussion, he must hold the stick. Then, the stick moves to another person who wants to speak or respond the topic. After all the people have the opportunities to convey their opinions, the stick returnable to the leader. Ahmad Munjin Nasih dan Lilik Nur Kholidah define that talking stick method is one of cooperative learning methods in the learning process by a stick, the student who gets the stick must answer the question by the teacher. Talking stick method is not only trains the students speak up but also creates fun and active condition in the class.<sup>24</sup>

Talking stick has been used for centuries by many Indian tribes as a means of just and impartial hearing. The talking stick was commonly used in council circles to decide who had the right to speak. When matters of great concern would come before the council, the leading elder would hold the talking stick, and begin the discussion. When he would finish what he had to say, he would hold out the talking stick, and whoever would speak after him would take it. In this manner, the stick would be passed from one individual to

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 $<sup>^{24}</sup>$  Ahmad Munjin Nasih dan Lilik Nur Kholidah. Metode dan Teknik Pembelajaran Pendidikan Agama Islam. Bandung: Rafika Aditama. 2006 p. 136

another until all who wanted to speak had done so. The stick was then passed back to the elder for safe keeping.

Talking Stick method is developed by Spencer Kagan It is a group of study that student learnt independently from one another, each student has the same chance to express their ideas and concern with equal participant of students. It is one kinds of Cooperative learning method.

# 2. Procedure of Talking Stick Method in Teaching Vocabulary Mastery

- 1. The teacher prepares the materials and a stick.
- 2. The teacher explains the main topic. Then, the students read and learn the materials for some minutes (10 minutes).
- 3. The teacher commands the students to close their books and takes a stick.
- 4. The teacher gives the stick to a student.
- 5. The teacher sings a song or plays music while the stick moves one student to another until the song or music stops.
- The music should suitable for 11<sup>th</sup> grade for students
- 6. The student who gets the stick must stands up and answers the teacher's questions.
- 7. Then, the stick rolls on again until each student gets the stick and takes part in the learning process.

## H. The strenghts and the weaknesses of talking stick method

The talking stick method is one of innovative strategy in order to make the students speak up and express their idea confidenly. Every strategy and method has the strights and weaknesses belong to talking stick method. Irfatul ainidefine that the talking stick method has strights and weaknesse. This method gives the advantages to attract the student's preparation, so they more serious in learning. Next, the talking stick method trains the students to comprehend and recall the materials vividly. However, there are some weakness when applying this method. This method makes the student be strained and afraid. Student stress when he or she gets the stick and must answer the teacher's question.<sup>25</sup>

Based on the explanation above, talking stick method is one of alternatif strategy to help the students construct and improve their vocabulary mastery and create fun learning activities in the class.

## I. Test of vocabulary

Heaton states that, "A test of vocabulary measures the student's knowledge of the meaning of certain words and groups. Such as a test may test the student's active vocabulary (the words he should be able to use in speaking and in writing) or his passive vocabulary (the words he should be able to recognize and understand when he is listening to someone or when he is reading."<sup>26</sup>

<sup>&</sup>lt;sup>25</sup>Irfatul Aini, Application of Innovative Instruction Model by means of the Talking Stick Method to Improve the Students Learning Activity on the Integrated Social Studies Subject Matter of VIIth Grade of the State Junior High School 1 of Singosari Malang 2010/2011, (Malang: UIN Malang, 2010)

<sup>&</sup>lt;sup>26</sup>JB. Heaton, *Language Testing*. P.41-42

## J. Quasi Experimental Design

Experimental is to estabilish a cause and effect relationship between two phenomena. The writer will aim to establish that one variable, the independent variable, cause changes in order variable, the dependent variable.<sup>27</sup>

Experimental design is a study design in which the researcher imposes some artificial constraints in the setting, manipulates the independent variable to establish cause-effect relationshipor both.<sup>28</sup> Experimental design is a plan for an experiment that specifies what independent variables will be applied, the number of levels each, how subject are assigned to groups, and the dependent variable.<sup>29</sup> In the present study, the writer typically compare two groups, one of which (the experimental group) receives the treatment, while the other (the control group) does not.

So quasi – experimental design are meant approximate as closely as possible the advantages of true experimental designs where the problems mentioned above accur, such as having to implement a programmer in a natural school setting. Quasi – experiments are often used precisely because such random allocation is not possible or practical. Typically, the experimental group will be decided by which setting (e.g. school. Classrooms. Factories) have volunteered or been selected to be part of the intervention.

<sup>&</sup>lt;sup>27</sup>Donal Ary, et. al, *Intoduction to Research Education, Eight Edition*, Canada: Wadsworth Cangage

Learning, 2010 , p.271.

28 Sabarun, The Effectiveness Of Using Outlines In Writing Expository Essay Of The Fifth Semester English Department Students Of Palangka Raya, Thesis Of State Islamic College, Palangka Raya: State Islamic

College, 2010, p.6

<sup>29</sup> Donald Ary, et. al, *Intoduction to Research Education, Eight Edition*, Canada: Wadsworth Cangage Learning, 2010, p.641.

Therefore, rather then randomly allocating, the writer will coose a control group that is as similar to the experimental group as possible. Because the writer not using random allocation. This class is calling control group the comparison group as it is not a pure control group. In order to retain the advantages of experimental designs (control over the evironment) as much as possible, it is crucial to ensure that the experimental and comparison groups are as similar as possible. This is not an easy thing to do, because the number of variables that may effect outcomes in educational settings is substantial.<sup>30</sup>

In the present study, the writer used quasi experimental design to know the effect of talking stick method. It based on the random assignment of subject to experimental and control groups. The writer will use nonrandomized contol group pretest-posttest design. This design will use because schedules of the school cannot be distrupted nor classes reorganize in order to accomodate the experimenter's study. This design should have two intact groups of subjects. One groups as experimental group, and the other one is control group. Both of groups gave pretest, than administer the treatment to the experimental group while with holding it from the other, and finally administer the pretest to both groups.

<sup>&</sup>lt;sup>30</sup>Daniel Muijs, *Doing Quantitative Research In Educational*, California: sage Publications, 2004, p.26-27 <sup>31</sup> Donald Ary, et. al, *Intoduction to Research Education, Third Edition*, New york: Holt, Reinhart and Winston, 1985, p.282

<sup>&</sup>lt;sup>32</sup>*Ibid.* P.242

 $<sup>^{33}</sup>Ibid.$ 

## **K. Definition of T-Test**

A T-test is a statistical examination of two population of two population means. A two-sample t-test examines whether two samples are different and is commonly used when the variances of two normal distributions are unknown and when an experiment uses a small sample size.

A T-test is statistical calculation to compare wheter two groups have different average vallues (for example, whether men and women have different average height).

A t-testasks whether a difference between two groups' averages is unlikely to have occurred because of random change in sample selection. A difference is more likely to be meaningful and "real" if:

- 1. The difference between the average is large.
- 2. The sample size is lage, and
- 3. Responses are consistenly close to the average values and not widely spread out (the standart deviation is low).<sup>34</sup>

<sup>34</sup>http://docs.statwing.com/example-and-definitions/t-test/(accessed on 01 juny 2016, 09:00 wib)