ABSTRACT

Septyorini, Lina. 2016, "Jigsaw Technique in Teaching Reading (Quasi Experiment Research at MTs Al-Madani Ponorogo)". A thesis, English Education, State Islamic College of Ponorogo. Advisor Dr. Ahmadi M.Ag.

Key Word : Jigsaw Technique, Teaching Reading

Reading is one of the most essential skills to be mastered in language learning. Reading can be seen as an 'interactive' process between a reader and a text which leads to automatically. One of the techniques in teaching reading is jigsaw technique. It is appropriate to use in subject like language, literature, and social studies in which the learning materials are written narrative mode.

The problems statement of this research is as follows: Do the eighth grade students of MTs Al-Madani Ponorogo in academic year 2015/2016 taught using Jigsaw technique have better score in reading than those taught without it? The purpose of this research is to know the significant difference on student's reading score that are taught by Jigsaw technique and taught without it at the eighth grade students of MTs Al-Madani in academic year 2015/2016.

This research applied quasi experiment research. This study was carried at the eighth grade students of MTs Al-Madani Ponorogo in April 2016. This study assigned two classes, they are students of VIII A as an experiment class which taught by jigsaw technique and students of VIII B as control class which taught using lecturing technique. The researcher used cluster sampling as sampling technique. She used test to get the primary data and documentation to get supporting data. Finally, the researcher computed the data by t-test analyzed.

The result of this study showed that, the average of the post test from experiment class which has been taught by jigsaw technique is 78. The result after the treatment showed that t_o = 32,8929. After being consulted with 5% significance level with db= 32, that is t_t = 2,036($t_o > t_t$). So Ha is accepted and Ho is rejected. It can be concluded that the eighth grade students of MTs Al-Madani Ponorogo in academic year2015/2016 taught by using jigsaw technique have better score in reading than taught without it.

CHAPTER I

INTRODUCTION

A. Background of the Study

Reading is one of the most essential skills to be mastered in language learning. It is a wonderful habit and can bring many benefits. One of benefits of wide reading is broad store information. Reading can be seen as an 'interactive' process between a reader and a text which leads to automatically.[1] In this process, the reader interacts with text as he/she tries to understand the meaning and where various kinds of technique are being used.

In reading, the reader must understand the meaning or contains in text. Reading comprehends, that is, the construction of meaning.[2] Reader constructs meaning by interacting with the text. According to Nunan, in his book also said that "Reading is a process of decoding written symbols, working from smaller units (individual letters) to larges one (word, clause, sentences).[3] Its mean reading is process to understand a text.

According to David Collins and Ann Collins, reading is mental process. The mental process has two parts: word recognition and comprehension. To perform the act of reading is to recognize words in print and to comprehend their

[1] Hesham Suleiman, "Teaching Reading Comprehension To ESL/EFL Learners," Journal Education, 5 (September, 2005), 2.

[2] Anne P. Sweet, Ten Proven Principles for Teaching Reading (U.S Departement of Education, Revised Edition, 1993), 5

[3] David Nunan, Language Teaching Methodology, (New York: Prentice Hall, 1991), p.20

collective meaning. One without the other is not reading.[4] It's meant that when a student correctly pronounces the words of a sentence in print but does not understand the meaning of the words, he or she fallen short of reading.

There are many problems in teaching reading; it can be from students, classroom management, and teacher's technique in teaching reading. According to Devie Nurhanifah in her research, she said that the most common problem that hampers the students was the problem in understanding the text. The students usually found problems with the difficult words used in the text.

She also said that insufficient time is another problem in teaching English especially in teaching reading. The class-time is often very short; it is once or twice a week, one or two hours daily for lots of subject matters to teach. Therefore, the lesson plan is not developed as programmed was and next class is often a review of the last unfinished teaching-learning process. If this situation happens constantly, the teacher will fail to reach the objectives that have been set before.[5]

Based on observation, the students of MTs Al-Madani Ponorogo particularly the eighth grade students had the difficulties in comprehending the text. In addition, according to the Mrs. Atiek as the English Teacher at MTs Al-

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[4] David Collins and Ann Collins, Advancing Reading Achievement, Becoming Effective Teacher of Reading Through Collective Study, (the Office of Educational Research andImprovement, U.S. Department of Education), p. 13

[5] Devie Nurhanifah, "The Problems of Second Grade Students of SMPN 4 Malang in Learning English", (http://jurnal online.um.ac.id/data/artikel/artikel73D5F26D76B9CC591DB29FB512B20360.pd accessed on 1 March 2016).

Madani, after the assessment was done, it could be conclude that the students' result in reading comprehension was still lower than the ideal result. The result of the test showed that the students had difficulties in understanding the text, such as: they had difficulties to find out the main idea of the text, to find implicit and explicit information, to understanding the meaning of words, phrase, sentences, and determining of the text.

The other problems was found when teaching learning process in classroom, the students did not enjoy in reading activities because of the monotonous technique which made the students become bored with the classroom atmosphere. The problem may caused by the uninteresting teaching technique that was used by the teacher in teaching reading.

Furthermore, the other problem also appeared because of unsuitable technique that applied in teaching reading. As the result, the students might find difficulties in understanding the reading passage that they have been learned before. The teacher doesn't have skill to manage her classroom. Theoretically, in order to make the students have a good mastery in reading, the teacher has to give more attention on how to manage the class so the students feel enjoy to share their ideas. But in fact the teachers less to manage their class, they keep to apply the old teaching practice in teaching learning process. [6]

Some educators state that old teaching practice is much better than the current teaching practice. Teacher-centered activity is very dominant in the old

[6] Observation on 11 April 2016

teaching practice. Teacher-centered activity is often called one way communication. The teacher is active in transferring his knowledge while students become passive and their potentialities are not well developed.

In old teaching technique students don't have enough opportunity and courage to express their ideas or opinion. When given reading assignments, they have serious problem and are not confident. As a result, reading process is not optimally in the classroom.[7]

What can English teacher do to solve those problems? The teacher must change the classroom condition to be more interesting so the students can enjoy and interesting in learning process. There are many variation of technique that can be applied in teaching reading. In this case, the researcher used jigsaw technique in teaching reading. The researcher believes that this technique will be able to increase student's reading score and makes student easy to understand the text.

The jigsaw technique is very simple to apply. In education, jigsaw is a teaching technique invented by social Psychology Elliot Aronson in 1971. Jigsaw, one of the cooperative learning techniques, is based on group dynamics and social interaction.[8] Bruffe suggests that cooperative learning is a systematic teaching and learning strategy that encourages small groups of students to work together for the

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[7] Sutanto Leo, A Challenging Book to Practice Teaching in English (Yogyakarta: C.V ANDI OFFSET. 2013), P. 3-4

[8] Abdullah Sahin," Effect of Jigsaw II Technique on Academic Achievement and Attitudes to *Written Expression Course,"* Educational Research and Reviews Academic Journal, Vol, 5 (12), December (2010), 2

achievement of common goal.[9] In this activity, students are grouped and given tasks based on the cases or problems provided by the teacher.

Jigsaw technique involves three aspects. First, groups that are comprised of five or six students are formed. Each student is then assigned a part of the material in which they are expected to become an "expert". Until this stage, students will have the opportunity to discuss their areas of expertise with other students who are not in their original groups, yet who have worked on the same part of the material. These discussion groups are known as "expert groups". Finally, each student presents a report of what he or she has learned about his or her topic to the rest of the student's original group. Teacher can conduct a short whole class discussion after the teaching task in all groups ended. Students take an individual short test of quiz after mastering the reading materials. The group with the highest group improvement score can receive a certificate or group reward. [10]

The reason way uses jigsaw technique is because the jigsaw technique can create a free atmosphere in classroom especially in teaching reading. According to Kessler, there are four benefits of jigsaw technique especially for second language classroom. First, jigsaw technique allows students to work in groups which have different culture and cognitive among the students. It can also support

[9] Sutanto Leo, A Challenging Book to Practice Teaching in English, (Yogyakarta: C.V ANDI OFFSET, 2013), 98.

[10] Retna Oktaviana, *The Use Of Jigsaw Technique in Improving Students' Ability in Writing Text Descriptive*, Journal of English and Education 2014, 2(1) 64-65

minority students in achieving their academic success. Second, jigsaw technique supports the communicative approach in language teaching. Third, jigsaw technique makes students to develop their cognitive skill. Fourth, jigsaw technique provides opportunities for students to develop their presentation and questioning technique.[11]

Working in group, therefore, is believed to solve the problem. According to Wichadee, the students who do not like to speak in large class are comfortable speaking out in a small group.[12] Group member can complete their strength and weakness in learning English reading because each student has different background and ability in learning English which he or she can bring to the group. For example, one student may have strength in vocabulary that can supply to the students with a less background of grammar. Furthermore, slow student will be benefit from interaction with better one, and good student will be proud they play an important role in helping their weaker classmates.

In addition, the research was done by Agustina with the title "The Role of Jigsaw Technique in Improving Students' Reading Comprehension Skill at SMPN 3 Pasuruan" showed a good result. There was no significant difference

[11] Retna Oktaviana, *The Use Of Jigsaw Technique in Improving Students' Ability in Writing Text Descriptive*, Journal of English and Education 2014, 2(1) 64-65

[12] Wichadee, The Effect of Cooperative Learning on English Reading Skill and Attitudes of The First Year Stusents at Bangkok University Bangkok , Bangkok : BU Academic.

between the pre test and post test in the control group. According to the result, the jigsaw technique was able to improve student's reading comprehension skill.[13]

This research attempts to explore and find out the differences students' reading score who use jigsaw technique and who don't use jigsaw technique. The research takes place at MTs Al-Madani Ponorogo. The title is "Jigsaw Technique in Teaching Reading (Quasi Experiment Research at MTs Al-Madani Nurul Huda Ponorogo)".

B. Limitation of the Study

To avoid for arranging discussion, this research only focused on using jigsaw technique as mean to compare the student's reading score before and after use jigsaw technique in teaching reading at eighth grade students of MTs Al-Madani Ponorogo in Academic Years 2015-2016.

C. Statement of the Problems

Regarding to the background of the study, statement of the problems is formulated into: Do the eighth grade students of MTs Al-Madani Ponorogo in academic year 2015/2016 taught using Jigsaw technique have better score in reading than those taught without it?

[13] Agustina, "*The Role of Jigsaw Technique in Improving Students' Reading Comprehension* Skill at SMPN 3 Pasuruan" (Thesis, Universitas Merdeka Pasuruan, 2010)

D. Objectives of the Study

The purpose of this research is to know the significant difference on student's reading score that are taught by Jigsaw technique and taught without it at the eighth grade students of MTs Al-Madani in academic year 2015/2016.

E. Significance of the Study

Basically, all study activities should be having clear significance at the end of study. The writer hopes that this reading will give a great benefit as follow:

1. Theoretical significance

   The result of this research can add knowledge especially about the contribution to education in teaching English especially in teaching reading.

2. Practical significance

   a. Teacher

      Become input for teachers, particularly English teacher in understanding cooperative learning using jigsaw technique.

   b. Students

      Motivate the students to improve their English reading ability using jigsaw technique.

   c. Reader

      This research is expected able to referent to arrange the next research and also can be used to increase their knowledge.

F. Organization of the Thesis

To provide clear general description content of this thesis, it is important to organize the process of this research report systematically. This thesis covers five chapters which are discussed comprehensively in order that readers can understand every step in this research. The organization of this thesis is as follows:

The first chapter is introduction. This chapter the whole of the research content that involves; background of the study, identification and limitation of the study, statement of the problems, objectives of the study, significance of the study and organization of the thesis. In the background of the study, the researcher talks about the reasons why jigsaw technique is choose as an alternative choice in teaching reading. In limitation of the study, it focuses on using jigsaw technique as mean to compare the score of student's reading ability before and after use jigsaw technique in teaching reading. In statements of the problem, the researcher talks about the research questions of the effectiveness of jigsaw technique in teaching reading. In the objectives of study, this talks about the purpose of this research according to the statement of the problems. Besides that, in significance of the study discusses about the benefits of theory and practical significance.

The second chapter is review of related literature. These are concepts used such as teaching, component of teaching, reading, process of reading, purpose of reading, components of reading, types of reading, technique, jigsaw technique,

and jigsaw technique in teaching reading, previous research finding, theoretical framework, and hypothesis.

The third chapter contains research methods. It consists of research design, population, sample and respondent, instrument of data collection, technique of data collection, and technique of data analysis.

The fourth chapter is about research findings, it describes about research setting and the discussion about the jigsaw technique in teaching reading to class VIII A and VIII B MTs Al-Madani Nurul Huda Ponorogo in academic year 2015/2016.

The fifth chapter is conclusion. This is last chapter of this study. In this part, conclusions as the study are drawn. Moreover, it is also provided with suggestions.

CHAPTER II

REVIEW OF RELATED LITERATURE

The review of related literature has a goal of providing previous study and information concerning with the research problems including overviews of theoretical background, previous research finding, theoretical framework, and hypothesis.

A. Theoretical Background

1. Teaching

Teaching is very important in educational system. It plays important role in learning process. They are many definition of teaching defined from many different points of view.

Teaching is guiding and facility learning, enabling the learner to learn, setting the condition for learning.[14] It means that teaching plays important role in educative activities. According to Brown, teaching can be defined as showing or helping someone to learn how to do something, giving instructions, guiding in the study of something, providing with knowledge causing to know or understanding.[15]

Teaching encourages students to learn. Encouragement is needed to make students brave, confident, and motivated to learn. The use of various

[14] H. Douglas Brown, Principle of Language and Teaching (New York: Longman, 2000), 8
[15] Ibid.

learning activities is able to encourage students' greater interest and excitement to learn.[16]

From definition above can be conclude that teaching is the process giving knowledge from teacher to the students, and encourage students to learn. So they get knowledge and experience which is useful for their life.

2. Component of Teaching

a. Lesson Plan

All good teachers have some types of plan when they walk into their classroom. It can be as simple as a mental checklist or as complex as a detailed two-page typed lesson plan that follows a prescribed format. Professional teachers need designing or planning their lesson before carrying out teaching activities. The success or failure of their teaching-learning activities is influenced by their lesson plan.

Lesson plan serves as a map or checklist that guides teachers in knowing what they to do next; these sequences of activities remind the teachers of the goals and objectives of their lesson for their students. Lesson plan is a teacher's detailed description of the course of instruction for one class. A daily lesson plan is developed by a teacher to guide class instruction.[17] The government regulation no 19, the year of 2005 states that the planning for

[16] Sutanto Leo, A Challenging Book to Practice Teaching in English, (Yogyakarta: C.V ANDI OFFSET, 2013), 1

[17] http://www.academia.edu/3690161/DEFINITION_OF_A_LESSON_PLAN, accessed on the 6th April 2016

instructional process covers the syllabus and the lesson plan containing the purpose, learning materials, methodology, the learning resources and the evaluation. Those are the components of lesson plan. [18]

A lesson plan is designed to meet the basic competence which can be carried out in one meeting or more. Things that should be written in the lesson plan are as follows:

1. Identity of the subject matter which consists of;
   a. Title of the lesson
   b. Class/Semester
   c. Program
   d. Theme
   e. Time allotment
2. Competency Standard

   Competency standard is the qualification of the students' minimal ability which illustrates the mastery of knowledge, attitude, and skill obtained through each class or semester for every subject.
3. Basic Competency

   Basic competency is a sum of students' ability for certain subjects as the reference for determining the indicators for competency achievement in a subject.

[18] Suyanto, Aisal Bayak and Adi Subagyo, Designing Lesson Plan, (Ministry of National Education, Directorate General of Quality Improvement of Teachers and Education Personel, 2009), p. 8

4. Indicator for competency achievement

   The measurable behavior of students that can be the reference for the subject evaluation. The indicators for competency achievement are formulated with operational verbs that can be measured which cover the knowledge, attitude, and skills.

5. The instructional goal

   Instructional goal illustrates the process and the learning outcome achieved by the students in accordance to the basic competency.

6. Instructional material

   It includes the fact, concepts, principle, and the relevant procedure as suitable items in relation to the indicators for competency achievement.

7. Time allotment

   Time is allocated as much as needed to achieve the basic competency and the learning load.

8. Methodology

   Method is used by teachers to create the teaching and learning process to enable the students to achieve the basic competency or a set of specified indicators.

9. Learning activities

   a) Pre activities

      This activity is done at the beginning of the lesson and meant for arousing the students' motivation and to focus the students'

attention as well, so that they can participate actively during the lesson.

b) Whilst activity

This is the main learning process and aimed at achieving the basic competency. This activity is conducted interactively, joyfully, challenging, motivating the students to participate actively, and giving opportunities to the students to have innovation and creativity.

c) Post activity

This activity is done to end the lesson which can be in the form of summarizing, evaluation, reflection, feedback and follow up activities.

10. Evaluation

The procedure and the instruments for assessment should be based on the indicators for competency achievement and refer to the evaluation standard.

11. Learning resource

Selecting the learning resource should consider the competency standard and the basic competency, as well as the learning material, the

teaching and learning activities and also the indicators for competency achievement.[19]

b. Teaching Material

Teaching materials can also define as the sources of learning. According to Mulyasa, the sources of learning means anything that can give the students information, knowledge, experience, and skill in teaching learning process.[20]

Furthermore, teaching materials are the resources a teacher uses to deliver instruction. Each teacher requires a range of tools to draw upon in order to assist and support students learning. There are many varieties of teaching material such as materials in print, video, and software formats. [21]

In short, teaching materials are anything used by teachers in learning process arranged systematically in order to give students information.

3. Reading

a. Definition of reading

Reading is learning about the meaning of the text. According to Harmer reading is an exercise dominated by the eyes and the brain.[22]

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[19] Ibid, p. 9

[20] Mulyasa, Enco. Kurikulum Tingkat Satuan Pendidikan,(Bandung: Remaja Rosdakarya, 2007)

[21] https://www.ucc.ie/en/teachlearn/resources/udl/materials/ accessed on the 6th 2016

[22] Jeremy Harmer, The Practice of English Language Teaching, (Essex: Longman,1991), p.153.

Meanwhile, J. Charles Alderson, defined reading as an interaction between a reader and a text. Specifically, Nunan in his book also said that "Reading is a process of decoding written symbols, working from smaller units (individual letters) to larges one (word, clause, sentences)[23]

Reading is a complex cognitive and linguistic process. It involves decoding alphabetic symbols, drawing upon experiences and language, and using strategies effectively to make meaning. Successful reading depends upon having available a repertoire of decoding and comprehension skills and strategies. It depends upon the richness of a learner's experiences and language, both in the world and with print.[24]

Based on explanation above, it shows the various definition of reading. It means that reading is an exercise dominates by the eyes and the brain and it is complex process that is combination between cognitive and linguistic process. By reading, the reader will know what they read and challenged to response the ideas of the author. In order to understand the messages from the author the readers should have ability in reading.

b. Reading processes

According to Neil Anderson, reading process is dividing into three categories: bottom up models, top-down models, and interactive models.

[23] David Nunan, Language Teaching Methodology, (New York: Prentice Hall, 1991), p.20
[24] https://www.calstate.edu/teacherED/docs/Reading_Report.pdf, accessed on march 5, 2016

Bottom up models typically consist of lower-level reading processes. Students start with the fundamental basics of letter and sound recognition, building up to the identification of grammatical structures, sentences, and longer texts. Letters, letter clusters, words, phrases, sentences, longer text, and finally meaning is the order in achieving comprehension.

Top-down models, begin with the idea that comprehension resides in the reader. The reader uses background knowledge, makes prediction, and searches the text to confirm or reject the predictions that are made. Within a top-down approach to reading the teacher should focus on meaning generating activities rather than on mastery of word recognition. Interactive models, the reader combines elements of both bottom-up and top-down models of reading to reach comprehension.[25]

From the definition above, we can conclude that reading processes have three models such as bottom-up, top-down and interactive models. The reader recognition words, letters, phrase, sentences, and meaning to achieve comprehension. The readers also use their background knowledge and makes prediction to achieve comprehension and the reader also can combine these models.

c. The Purpose of Reading

[25] David Nunan, Practical English Language Teaching, (Singapore: McGraw-Hil, 2003), p.70-721

The purpose of reading is to gain information. We read because we want to get something from the writing; novel, magazine, newspaper, book, whatever it was, you wanted to get the message that the writer had expressed.

Harmer divides the purpose of reading into two general purposes. First, reading for pleasure. People reading material is interesting, such as comics, novels, or magazines. Second, reading for usefulness of the text. People read because they need the information contained in the text, such as books, newspaper, encyclopedia, and so on. [26]

Reading also has purpose to find information, such as material and meaning written. There are[27]

1. Reading to search for simple information
2. Reading to skim quickly
3. Reading to learn from texts
4. To integrate information
5. To write (or research for information needed for writing
6. To critic texts for general comprehension

From definition above, we can conclude that reading has many purposes. Students must be known about these purposes so makes students more interesting in reading.

[26] Jermy Harmer, The Practice of English……..p. 182.

[27] William Grabe and Fredericka. Stoler Teaching and Researching Reading. (London: Longman, 2002), 9

d. The Types of Reading

There are identifiable skills in reading; skimming, scanning, intensive reading and extensive reading.[28]

1) Skimming: being able to look over material rapidly for given purpose without reading every phrase. Skimming enables people to select content they want to read.
2) Scanning: reading to locate specific information, e.g. locating telephone number in directory. Scanning enables people to locate specific information without reading all material around it.
3) Intensive reading: in intensive reading, the reader tries to absorb all the information given by the author. E.g. reading dosage instruction for medicine.
4) Extensive reading: the reader deals with longer text as whole, which requires the ability to understand the component parts and their contribution to the overall meaning. E.g. reading newspaper, article, novel, etc.

e. The components of Teaching Reading

There are five components to teaching reading. They are:[29]

1. Phonemic Awareness

[28] Andrew Wright, Picture for Language Learning, (Cambridge: Cambridge University Press, 1999), p. 159.

[29] Ms. Chintha Maharaj, *Teaching Reading in the Early Grades, A Teacher's Handbook,* (Department of Education: Formeset Digital, 2008), p. 11

Phonemic awareness is the ability to notice, think about, and work with individual sounds in spoken words. Before children learn to read print, they need to become aware of how sound in words work. Phonemic awareness can be developed through use of poems, songs, rhymes.

2. Word Recognition

Word recognition refers to the skills that readers need in order to read unknown words. The two elements involved in word recognition are phonics and sight words.

a) Phonics

Phonics means decoding a word by breaking it down into (syllables and letters). Phonics instruction teaches children the relationship between the letters of written language and individual sounds of spoken language.

The purpose of phonics instruction is to give the learner tools so that he or she can easily decode the words. They may not understand the words they are reading, especially if they are in an unfamiliar language. When you put together phonics (ability to decode words) and vocabulary (knowledge of words means), it makes easy to construct meaning.

b) Sight Words

Sight words (or 'look and say' words) involve the learner in recognizing a word by its shape, length and other features. Many of the most common words have irregular sound to letter relationship. Example like **this, because, you, me, and, was** show that they cannot be decoded according to phonic rules or principles. For example, 'was' really sound like 'wuz', and therefore just has to be recognized by sight – it cannot be decoded. But according to experts, some 90% of English words can be totally or at least partially decoded, so decoding is quite important.

3. Comprehension

As a teacher of reading, you need to keep a close check on whether learners really understand and interpreting what they are read. Comprehension (understanding) has to be developed from the very start.

Way of developing comprehension:

a) Activate the reader's prior knowledge: Encourage the learners to activate his or her prior knowledge whenever they read a new text.

b) Read aloud to learners: Reading aloud to learners, and then discussing the meaning, the learners' impressions, having them guess ahead.

c) Help learners to use clues and illustration in and around the text: Draw attention to the illustrations, photographs, tables, graphs and cartoons that may appear on the page. These are usually very important to help the reader to make meaning.

d) Increase vocabulary: Learners develop their vocabulary by reading and by listening to someone else reading to them. The more words they know, the easier it is for them to work out the meaning of words from their contexts.

4. Vocabulary

To develop as readers, learners need to have knowledge and understanding of wide range of words. Knowing of words will help with fluency as well as the comprehension of text. Some vocabulary can be learned incidentally from the context of the text that the learner is reading, but there is also need to teach vocabulary in planned, deliberate way.

5. Fluency

Fluency in reading means the ability to read text smoothly, accurately and with understanding. Fluency is key indicator of

comprehension. If the learners are reading just one word at a time, without fluency, it probably means that they also have problems in understanding the text.

From the explanation above, researcher conclude that these components of teaching reading must work together in order to become successful reader.

4. Jigsaw Technique

a. Definition of Technique

Douglas Brown said," Technique is as a super ordinate term to refer to various activities that either teacher performs in the classroom. In other word, techniques include all tasks and activities. They are the product of a choice made by the teacher.[30]

According to Anthony, a technique is implementation that which actually takes place in a classroom. It is particular trick, strategies, or contrivance used to accomplish an immediate objectives.[31]

Thus, technique is the activities or strategy that arranged systematically used teacher in teaching process.

b. Definition of jigsaw technique

[30] H. Douglas Brown, Teaching by Principles an interactive Approach to Language Pedagogy, 2nd Ed. (San Francisco: Longman,2001), p.129-130

[31] Jack C, Richard and Theodore S. Rodgers, Approaches Methods in Language Teaching, (New York: Cambridge,2001), p.19

Jigsaw was originally designed by Elliot Aronson and his colleagues in 1978. Slavin (1994) developed a modification of jigsaw by adapting Elliot Aronson's technique. It is appropriate to use in subject like language, literature, and social studies in which the learning materials are written narrative mode. [32]

Jigsaw technique allows students to actively participate in learning process because jigsaw is one of the cooperative learning techniques. In cooperative learning students stimulated to think, solve the problem, apply their competence and knowledge.[33] It all makes students active in learning process.

Jigsaw technique is a technique that makes student learning in group. In groups, students tend to participate more equally, and they are also more able to experiment and use the language than they are in a whole-class arrangement.

Group work has many advantages, such as:

1. The students are working together without the teacher controlling every move; they take some of their own learning decision.

[32] Li and Lam, "Cooperative Learning", Copyright 2005-2013 The Hong Kong Institute of Education,(Online) 15 November 2015.

[33] Sutanto Leo, A Challenging Book to Practice Teaching in English, (Yogyakarta: C.V ANDI OFFSET, 2013), p.98

2. They give the teacher opportunity to work with individual students. While group A and C are doing one task, the teacher can spend some time with group B who need special attention.
3. The students can share their difficulties in learning with their friends because they feel shy when they talk to their teacher. [34]

c. The principles of jigsaw technique

There are five principles for jigsaw technique such as:

1. Positive interdependence

   Each group member's efforts are required and indispensable for the group success. Each group member has to make unique contribution to the joint effort.

2. Face to face interaction

   Group members have to orally explain how to solve problems, teach one's knowledge to others, check for understanding, and discuss concepts being learned.

3. Individual and group accountability

   The teacher is expected to give an individual test to each student, randomly examine students by asking one student to present his or her group's work orally to the teacher, observe each group and record the frequency with which each member contributes to the group's work,

[34] Jeremy Harmer, How to Teach English, An Introduction to The Practice of English Language Teaching, (England: Malaysia VVP, 1998), P. 21

appoint one student in each group as the leader, who is responsible for asking other group members to explain the rational underlying the group answer, and monitor students to teach what they have learned to the others.

4. Interpersonal skills

   Social skills are a necessity for the success of jigsaw learning in class. Social skill include leadership, decision making, trust building, communication, conflict management skills and so on.

5. Group processing

   Group members discuss how well they are achieving their goal and maintaining effective working relationship, describe what member action are helpful and what are not. [35]

d. The beneficent of jigsaw technique

As a teaching technique jigsaw has some benefits as follows:[36]

1. Efficient ways to learn

   Jigsaw is one of effective teaching technique in teaching reading. Here the students do not need read a long text, even the story is composed by long text because in jigsaw every student has own piece task, so it will make the student faster in read and comprehend in reading

[35] Qiao Mengduo & Jin Xiaoling,"Jigsaw strategy as a cooperative Learning Technique: Focusing on the Language Learners,"Chinese Journal of Applied Linguistics, 33 (August, 2010), 3.

[36] http:// carleton.edu/sp/library/jigsaws/why.html, (accesed January 10, 2016)

"Students gain practice in peer teaching, which requires them to understand the material at a deeper level than students typically do when simply asked to produce on an exam".

2. Students are accountable among their peers

After the students do their task/ read and comprehend it, they should back to their home group/jigsaw group and share their knowledge "Each student develops an expertise and has something important to contribute to the group".

3. Students are active participant in the learning process

In jigsaw technique each student participate and become an essential part in classroom because they should be responsible to do their task.

"Each student also has a chance to contribute meaningfully to a discussion, something that is more difficult to achieve in large-group discussion".

4. Built interpersonal and interactive skills

Jigsaw is cooperative learning technique where the students work in group, so it will bring the student to make relation and share each other for finishing their task.

"Jigsaw encourages cooperation and active learning and promotes valuing all students' contributions"

e. The steps of jigsaw technique in teaching reading.

Jigsaw is one of cooperative learning strategy it means that in jigsaw the student must study in a group. The jigsaw is very simple to use. Here are the steps of jigsaw technique in teaching reading.[37]

1. Each student being assigned a particular section of text, which can be a reading comprehension passage, short story, biography or a chapter from a book. For groups of four, the expert sheet consists of four questions each of which focuses on one of the four themes of the reading materials. Every member of each group is responsible to answer one of the questions in the sheet from reading the relevant parts in reading materials. Questions in the expert sheet can be randomly assigned to the group members. Every student reads the relevant materials alone.
2. Students with the same topics meet in expert groups to discuss them. In order to facilitate discussion, guiding questions can be provided to each expert group. Every member is encouraged to take notes of what they have discussed so that they can teach their teammates in their home group after the discussion. Whenever a problem arises, students should try to find their own solution before seeking help from the teacher. Conflicts should be

[37] Li and Lam, "Cooperative Learning", Copyright 2005-2013 The Hong Kong Institute of Education,(Online) 15 November 2015.

resolved using different social skills. Depending on the type of questions, it may not require a group consensus for the question discussed

3. Then, students go back to the home group from the expert group to teach one another the things they have discussed. They are reminded to help each other to master the materials as much as possible. Teachers can conduct a short whole class discussion after the teaching task in all home groups ended. The aim of the class discussion is for clearing up doubts, if any, as well as for provoking further discussion of the topic.
4. Students take an individual short test of quiz after mastering the reading materials. Immediately after the test, members exchange their paper for marking, referring to an answer sheet provided by the teacher. The score of each student is entered under the column of test score on the group score sheet. The test scores are then computed as improvement scores by comparing with each member's base score that represents his/her past performance.

B. Previous Research Findings

This study needs some previous research as a consideration theory. Those research findings are important to be input. The details are explained as follows:

One of students research for thesis is MAHASARAWATI Denpasar University is research by Ni Kadek Parmadyani. The title is "Improving Reading Comprehension through Jigsaw Technique to The Eighth Grade Students of SMPN 3 Bebandem in Academic Year 2012/2013. The objective of this study was to increase students' reading comprehension through jigsaw technique. This is a classroom action research that is not quite similar with my research. The result of this research is reading comprehension of the tenth grade students of SMPN 3 Bebandem could be improved through jigsaw technique.

The second is from Dian Nur Aini the title is The Comparative Study between Jigsaw Learning and Lecturing Technique on Reading Comprehension Mastery for the Tenth Grade Students of MA AL MUKAROM Sumoroto Ponorogo in Academic Year 2009-2010. The objective of this study was to compare jigsaw learning and direct method on reading comprehension. In her research students' reading comprehension mastery taught by using jigsaw learning technique is good and the average score obtained is 79,91. Though this is quantitative study but is not quite similar with my research.

Based on the two researches above, the researcher conclude that jigsaw technique many advantages in learning process especially in teaching reading.

C. Theoretical Framework

X: Jigsaw Technique

Y: Teaching Reading

Those variables are jigsaw technique (x) as independents variables and teaching reading (Y) as dependent variables. From two variables above, the researcher conclude that theoretical framework as follows:

The students which use jigsaw technique have better reading score than the students which not use jigsaw technique.

D. Hypothesis

According to Mohammad Adnan Latief, Hypothesis is the prediction of the researcher.[38] Based on limitation and statement, the researcher propose action hypothesis as follows:

Ho : The students who are taught by using jigsaw technique do not have better score in reading than the students who aren't taught by using jigsaw technique.

Ha : The students who are taught by using jigsaw technique have better score in reading than the students who aren't taught by using jigsaw technique.

[38] Mohammad Adnan Latief, Research Methods on Language Learning, An Introduction, (Malang: UM Press, 2014), p. 53

CHAPTHER III

RESEARCH METHODS

A. Research Design

This research is a quantitative research with the design quasi experimental research. Quantitative research refers to the systematic empirical investigation of social phenomena via statistical, mathematical or computational technique.[39] Quantitative data is any data that is in numerical form such as statistic, percentage, etc. Moreover Cresswell (1994) has given a very concise definition of quantitative research as a type of research that is explaining phenomena by collecting numerical data that are analyzed mathematically based method (in particular statistic).

This research employs quasi experimental design. This design has a control group. Quasi experimental come in several form, for example:

1. Pre experimental design: the one group pretest-post test design, the one group post tests only design, and the post tests only nonequivalent design.
2. Pretest-post test non equivalent group design.
3. One group time series.[40]

[39] http://en.m.wikipedia.org/wiki/Quantitative Research, acessed, December,10, 2015

[40] Louis Cohen, Lawrence Manion & Keith Morrison, Research Methods In Education, Sixth Edition, (New York: British Library Cataloguing in Publication Dara, 2007), p. 282

This research chooses non equivalent control group design to be applied as a design. One of the most commonly used quasi experiment design in educational research can be represented as:[41]

E O1 → X → O2

K O3 → X → O4

Notes:

E: Experiment class (the students who are taught using jigsaw technique)

K: Control class (the students who are using conventional technique)

O1: Pre test for the experiment class

O3: Pre test for the control class

X: Treatment

O2: Post test for the experiment class after using jigsaw technique

O4: Post test for the control class after using conventional technique.

According the research design above, the researcher determines two classes on his research subjects. They are experiment and control class. The researcher chooses VIII A class as the experimental class and VIII B as the control group.

This study would be carried out through four activities. The two activities were teaching-learning activities. The first activity was pre test. It was used to know students' reading skill. After that, the researcher continued with a post test. It measures the effectiveness of the treatment.

[41] ibid, p. 302

There would be some steps like a pre research step, whilst research, and post research step. Here, the elaboration of the whole steps:

1. Pre research step

   The researcher has to prepare the data which is needed before the research started. For examples: determine the experimental class and control class, arrange the lesson plan base on teaching learning materials, prepare instrument to gain the data, and do validity test before giving it to the students.

2. Whilst research

   In this step, the researcher does some treatments to both classes; experimental class uses jigsaw technique and control class uses conventional technique. The treatments do after pre test and before post test

3. Post research step.

   The next steps are post research. The researcher does post test to measure the students' reading skill. It used to know the effectiveness of the treatment. So, the researcher can conduct the conclusion of the research class.

The research design that is used by the writer is adjusted with the purpose of the study to know teaching using jigsaw technique affects the student's reading skill at the eighth grade students of MTs Al-Madani Grogol Ponorogo in academic 2015/2016 by finding the result of "t" test between students who are taught using jigsaw technique and students who are not taught using jigsaw technique.

B. Population and Sample

A population can be defined as including all people or items with the characteristic one wish to understand. Arikunto states that populasi adalah keseluruhan subjek penelitian. In the encyclopedia of educational written: a population is a set (or collection) of all elements possessing one or more attributes or interest.[42] It means that population is the entire subject in which the researcher can gain the data.

A sample is the small group that is observed. Charles, C.M. define a sample as a small group of people selected to represent the much larger entire population from which it is drawn.[43] According to Arikunto, sampel adalah sebagian atau wakil populasi yang diteliti.[44] It means that sample is part of population which is became research object.

Arikunto states that untuk sekedar ancer-ancer maka apabila subjeknya kurang dari 100, lebih baik di ambil semua sehingga penelitiannya merupakan penelitian populasi. Selanjutnya jika jumlah subjeknya besar dapat diambil antara 10-15% atau 20-15% atau lebih.[45]

[42] Suharsimi Arikunto, Prosedur Penelitian (Jakarta: PT Rineka Cipta, 1992), p. 102

[43] Mohammad Adnan Latief, Research Methods on Language Learning, An Introduction, (Malang: UM Press, 2014), p. 181

[44] Suharsimi Arikunto, Prosedur Penelitian (Jakarta: PT Rineka Cipta, 1992), p. 104

[45] Ibid, p. 107

According to research design, the researcher takes two classes one class for implementing Jigsaw Technique and another one for implementing conventional learning.

Clusters sampling is used to take sample in this research which is since the unit chosen is not an individual but a group of individuals who are naturally together. The number of student in VIII A is 20 students, and VIII B is 14 students. Both those classes have the same skill in reading.

C. Instrument of Data Collection

Data is most important thing in the research, to get the data the researcher has to arrange the instrument and technique data that are needed to collect data. There are six ways to collect the data in research. Those are test, questioner, interview, observation, rating scale, and documentation.[46]

In this research instrument to collect data is test. The test is constructed by the researcher based on the standardized procedure of making test. The test is divided into two parts. They are pre test and post test. The pre test is directed in the beginning study before the treatment and post test is given after the treatment.

[46] Suharsimi Arikunto, Prosedur Penelitian Suatu Pendekatan Praktik (Jakarta: PT. Rineka Cipta,1998/, p.150-158

Table 2.1 The indicators of instrument

Title	Variable	Indicator
Jigsaw Technique in Teaching Reading (Quasi Experiment Research at MTs Al-Madani Ponorogo	The implementation of jigsaw technique	Students able to comprehend the text
	Student's mastery in reading	

D. Validity and Reliability

1. Validity

Valid means correct. According to Charles, C.M., as quoted by Mohammad Adnan Latief , scores obtained from a test of critical thinking are valid if they represent ability to think critically, as distinct from knowledge of vocabulary or reading skill. It is means that the correctness of the assessment is called validity.[47] Validity can be divided into four types, namely content validity, construct validity, predictive validity, and concurrent validity. To test the validity of the instrument in this research, researcher used a type of construct validity.

Construct validity evidence comes from the assessment instrument used. An assessment instrument is always designed to measure specific knowledge or skill of a group of people. The construct defined will lead to what task the instrument requires students to do. To calculate it by used the product moment correlation with the formula:

[47] Mohammad Adnan Latief, Research Methods on Language Learning, An Introduction, (Malang: UM Press, 2014), p. 223-224

$$r_{xy} = \frac{N.\Sigma_{xy} - (\Sigma_x)(\Sigma_y)}{\sqrt{(N.\Sigma x^2 - (\Sigma x)^2)(N.\Sigma y^2 - (\Sigma y)^2)}}$$

Notes:

r_{xy} **:** The correlation coefficient between X and Y variable

$\sum xy$: The total number of manipulation score of X and Y

$\sum x$: The total number of X variable score

$\sum y$: The total number of Y variable score

$\sum x^2$: The total number of square of X variable

$\sum y^2$: The total number of square of Y variable

The steps of data analysis applied in this research are:

a) Determining $\sum x$, $\sum y$, $\sum xy$, $\sum x^2$, $\sum y^2$

b) Computing by applying the formula of product moment correlation

c) Determining of significant standard 5% and 1%

d) Determining the correlation criteria applying the correlation index,[48]

It is very important to test the validity of our instrument before we are going to hold the research. Because when our instrument is valid, the data gained are accurate and valid. The table bellow shown the recapitulation test

[48] Suharsimi Arikunto, Prosedur Penelitian Suatu Pnedidikan Praktik (Yogyakarta: Rineka Cipta, 2002), p.276

item validity of the research, see the appendix 10 for more complete calculation of validity:

To measure the validity of instrument of research, the researcher put the total sample 20 respondents in students class VIII A MTs Terpadu Bina Putra. The researcher gave 20 multiple choice questions for this class. So, the researcher calculates the validity test from the result of multiple choice questions.

Table 2.2 Recapitulation Test Item Validity

No Item	'r' arithmetic	'r' table	Explanation
1	0,565	0.413	Valid
2	0	0,413	Invalid
3	0,421	0,413	Valid
4	0,613	0,413	Valid
5	O,618	0,413	Valid
6	0,684	0,413	Valid
7	0,425	0,413	Valid
8	0,561	0,413	Valid
9	0,500	0,413	Valid
10	0,478	0,413	Valid
11	0,336	0,413	Invalid
12	0,464	0,413	Valid
13	0,397	0,413	Valid
14	0,472	0,413	Valid
15	0,443	0,413	Valid
16	0,676	0,413	Valid
17	0,059	0,413	Invalid
18	0,420	0,413	Valid
19	0,420	0,413	Valid
20	0,380	0,413	Invalid

From the table above, it can be concluded from 20 questions that used to validity test of valid only 16 questions, so just 16 questions that will be used in test.

2. Reliability

Reliability is the degree of consistency the instrument of test. [49] The result of a language skill assessment has high reliability if the result precisely represents (is very closed to, or is not too far away from, or gives good estimate of, or underestimate) the true level of the skill being assessed.[50] In other words, if the language skill assessment result is too far away different from the true level of the skill being assessed, then the assessment result has low reliability. In this study, the writer use Kuder – Richardson Formula 20 to calculate reliability:[51]

$$rii = \left(\frac{n}{n-1}\right)\left(\frac{S^2 - \sum pq}{S^2}\right)$$

Formula of variant:

$$S^2 = \frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N}$$

K = number items in the instrument

n = number item

p = proportion of individuals who answer an item correctly

[49] Zainal Arifin, Evaluasi Pembelajaran (Bandung: Remaja Rosdakarya, 2011), p.258.

[50] Mohammad Adnan Latief, Research Methods on Language Learning, An Introduction, (Malang: UM Press, 2014), p. 212.

[51] James Dean Brown, Testing in Laguage Programs: A Comprehensive Guide to English Language Assessment, (Singapore: McGraw- Hill ESL/ELT, 2005), P. 179- 180

q = proportion of individuals who answer an item with wrong

pq = a variant of the one who is scored in a dichotomous item.

The table bellow shown the recapitulation of reliability of the research, see the appendix 12 for more complete calculation of reliability:

Table 3.1 Test Item Reliability

"r" arithmetic	**"r" table**	**Explanation**
0,8715	0,413	Reliable

E. Normality and Homogeneity

1. Normality

The simplest test for normality is to graph the frequency distribution data. Given the simplicity of it, then testing the normality of the data is high dependent on the ability to examine data in plotting the data, if the amount of data are many and deployment are not 100% normal (not perfect), then the conclusions drawn are likely wrong. To avoid this mistake, it is better to use some formulas that have been tested truth that is Kolmogorov- Smirnov. Each of two populations being compared must follow a normal distribution. This can be tested by this.

2. Homogeneity

Homogeneity test is needed to do before we find a different significant of data. This test purposes to know whether the data of research homogeny or heterogenic, so by this we can say that the variant of data in research is homogeny. The researcher uses Harley formula to the homogeneity of data. The formula is:

$$F\ (\max) = \frac{Var\ max}{Var\ min}$$

F. Technique of Data Collection

Techniques of data collection in this research are test and documentation.

1. Test

Test is set of question or practice or other tools which is used to measure skill, intelligence, ability or talent individual or group. According Brown, test is method of measuring person's ability, knowledge or performance in a given domain.[52] The researcher used test to get scores of data from students, so it can be knew significant difference students who are taught using jigsaw technique and students who aren't taught using jigsaw technique.

[52] H. Dougles Brown, Language Assessment (San Fransisco: Longman Itd, p.3

2. Documentation

Documentation is the technique of collecting data which is taken from written such as books, newspaper, opinion which related of the research.[53] In this research documentation as supporting data include history of school, geographies location, vision, mission, and purpose of school.

G. Technique of Data Analysis

After collecting data, the next step to be done by researcher is how to analyze those data. The purpose of this step is to arrange and interpret data, to know the effectiveness of cooperative learning using jigsaw technique in teaching reading skill. In this case, researcher counts the data to answer statement of the problem and try to test the hypothesis.

Generally, the data analysis divided into three steps, as follow:

1. Preparation
2. Tabulation
3. Data implementation [54]

The technique of data analysis in this research is T test. T-test is used to determine whether the means of two groups are statically different from one

[53] Ibid. 158

[54] Suharsimi Arikunto, Prosedur Penelitian Suatu Pnedidikan Praktik (Yogyakarta: Rineka Cipta, 2002), p.244

another. This is to identify the effectiveness of cooperative learning using jigsaw technique in teaching reading skill.[55]

The formula to analysis the data are:

1) Determining of mean from variable I and II

$$M_1 = M_1' + i\left(\frac{\sum fx'}{n1}\right) \quad M_2 = M_2' + i\left(\frac{\sum fy'}{n2}\right)$$

2) Determining of standard deviation of variable I and II

$$SD1 = i\sqrt{\frac{\sum fx'^2}{n1} - \left(\frac{\sum fx'}{n1}\right)^2} \quad SD2 = i\sqrt{\frac{\sum fy'^2}{n2} - \left(\frac{\sum fy'}{n2}\right)^2}$$

3) Determining of standard of error mean from variable I and II

$$SE_{M1} = \frac{SD_1}{\sqrt{n1-1}} \qquad SE_{M2} = \frac{SD_2}{\sqrt{n2-1}}$$

4) Determining the differentiation standard error between the mean variable I and variable II

$$SE_{M1-M2} = \sqrt{SE_{M1}{}^2 + SE_{M2}{}^2}$$

5) Determining of t-test

$$t_o = \frac{M_1 - M_2}{SE_{M1-M2}}$$

6) Interpretation

db = n – 1 and consult the table value of "t".

Interpretation is consulting the result between tt (t-table) and to (t-observation). If to higher than tt, so Ho is refused and Ha is received. If to smaller than tt (t-table), Ho is received and Ha is refused.

[55] http//en.m.wikipedia.org/wiki/student's_t-test, accessed, 10 November, 2015

Notes:

M_1 = Mean of variable x

M_2 = Mean of variable y

i = Interval

$\sum fx'$ = Sum of frequency x'

$\sum fy'$ = Sum of frequency y'

nx = The number of sample variable x

ny = The number of sample variable y

SD x = Standard deviation of variable x

SD y = Standard deviation of variable y

SE_{M1} = Standard error of mean x

SE_{M2} = Standard error of mean y

SE_{M1-M2} = Standard error between the mean from variable I and variable II

t_o = t-test[56]

[56] Ibid., 172

CHAPTER IV

RESEARCH RESULT

A. Place and Time Research

This research takes place of MTs Al-Madani Nurul Huda. It is located at Madukoro street No 14 Grogol Sawoo Ponorogo, which was build in 2010. The research was held over period of time from April, 11th 2016 to April, 19th 2016. The writer holds a research by an experimental study to measure the effectiveness of Jigsaw technique in teaching reading.

B. Data Description

1. Procedure of Experiment

This research used experiment research which made two classes as the sample; those were VIII A as experiment class and VIII B as control class. The number of VIII A is 20 students.

In experiment class, the researcher used Jigsaw technique in teaching learning process. There are some procedures used in this class; pre test, two treatments, and post test. The researcher only uses genre text narrative in teaching reading.

Firstly, the students were given pre test. According Mrs. Atiek as English teacher of MTs Al-Madani Nurul Huda, both VIII A and VIII B students have difficulties in learning English subject especially in reading. So,

the researcher needs to give evidence by give pre test. It used for about 25 minutes. The students answer 20 questions multiple choice according to text narrative. It was hold on April, 11th 2016.

The first treatment of Jigsaw technique held on April, 11th 2016. Before the teacher asks students to make group, teacher explain material about narrative text. Then teacher asks students to make group. Groups consist of four students. Every member of each group is responsible to answer one of the questions in the sheet from reading the relevant parts in reading material. In this step, all students discuss about snow white. Students with the same topics meet in the expert groups to discuss them. In order to facilitate discussion, teacher gives guiding questions to each student. Teacher asks students to take notes of what they have discusses. It makes they can teach their teammates in their home group. Then students go back to the home group from the expert group. To check their understanding, teacher gives a test for all students. This test is written test. Students should arrange the generic structure of text Snow White.

Thirdly, the second treatment held on April, 12th 2016. The procedure is same with the first treatment. Teacher use jigsaw technique in teaching reading. In this section students are study about narrative text. Teacher gives students text about Jaka Tarub and Seven Angels. In the last meeting held on April, 13th 2016, teacher give post test for all students. It used to measure whether the Jigsaw technique is success or not in teaching reading.

2. Procedure of Control Class

This research takes VIII B as a control class which applies lecturing technique. It is trying to make teaching and learning process naturally. The number of VIII B class is 14 students.

There are two meeting for the control class. The procedure is the same with the procedure of experimental class. There are pre test, first and second treatment with the conventional technique and the last meeting post test. Pre test and first treatment held on May, 18th 2016, second and post test held on April, 19th 2016. The material which was taught to the students was same with experimental class. That is narrative text.

The lecturing technique is not new technique which is taught by the teacher in teaching and learning process. Lecturing technique is a technique that involves primarily, an oral presentation given by teacher to all students. Teacher centered is very dominant in this technique. The teaching and learning process using lecturing technique through some steps, they are:

a. Teacher explains the material orally.
b. Giving one text to all students then discuss it together.
c. Help students if they have difficulties in reading process.
d. Giving exercise to the students, then they check the answer together.

To know whether Jigsaw technique is effective or not in teaching reading, the researcher describes the data. The data are pre test and post test from experiment class and control class.

1. Data of students' reading score who are taught using jigsaw technique (Experiment class).

Table 3.2

Students' reading score (Experiment class)

No	Nama	Pre test	Post test
1	Arsyad Mualifi	60	75
2	Bagus Irwinsyah	55	80
3	Bima M. A.R	50	80
4	Dewi Fitriyani	55	85
5	Ikvani Yuli R.	60	85
6	Jayin Mufidatul	50	65
7	Khabib Rizal Adi	65	75
8	Kharisma R.	50	70
9	M. Irkhamni	75	80
10	Nicky Putra Dwi	50	75
11	Rena Arista	60	80
12	Risalatul M	70	80
13	Rohman Abidin	65	75
14	Saffina M	65	85
15	Sigit Saputro	50	80
16	Siti Ahisah	75	75
17	Sulistina Mila K.	60	80
18	Ttik Melasari	55	80
19	Wahyu Disna S.	50	70
20	Wulan Bestari H.	75	85

2. Data of students' reading score who are taught without using jigsaw technique (Control class)

Table 3.3

Students' reading score (Control class)

No	Nama	Pre test	Post test
1	Al Aziz	50	70
2	Andika C	50	65
3	Dea Yahmana	70	60
4	Fadilaili R	55	65
5	Ferdianda Putra	50	55
6	Jayani Shodiq	50	65
7	Liilis Susianti	60	70
8	M. Nur Rokhim	50	60
9	Muhammad Safii	65	55
10	Muh Taufiq	55	55
11	Muhtarom	60	75
12	Pebriono	45	50
13	Rati Wahyuni	70	70
14	Safitri	60	60

C. Data Analysis

This section the researcher used t-test to analyze the data. So, the researcher needs to know the normality and homogeneity of the data. It explains as follow:

1. Normality Test

Normality test is used in order to measure the data is normal or not. The researcher used Kolmogorov-Smirnov to check the normality of the data.

Table 4.1

The Table of Normality Test on Experiment Class

X	f	f x	x^2	F x^2	fkb	f/N	fkb/N	Z	P<Z	a_2	a_1
85	4	340	7225	28900	20	0,2	1,00	1,3100	0,9049	0,095	0,105
80	8	640	6400	51200	16	0.4	0,80	0,3743	0,6443	0,156	0,244
75	5	375	5625	28126	8	0,25	0,40	-0,5614	0,2877	0,112	0.138
70	2	140	4900	9800	3	0,1	0,15	-1,4972	0,0681	0,082	0,018
65	1	65	4225	4225	1	0.05	0.05	-2,4329	0,0075	0,043	0,007
Total	20	1560		122251							

To determine some contents on the table above, the researcher use some formulas, such as:

a. Determine Mean

$$\text{M x} = \frac{\sum fx}{N} = \frac{1560}{20} = 78$$

b. Determine of Standard Deviation

$$\text{SD}_x = \sqrt{\frac{\sum fx^2}{N} - \left(\frac{\sum fx}{N}\right)^2}$$

$$= \sqrt{\frac{122251}{20} - \left(\frac{\sum 1560}{20}\right)^2}$$

$$= \sqrt{6112{,}55 - (78)^2}$$

$$= \sqrt{6112{,}55 - 6084}$$

$$= \sqrt{28{,}55} = 5{,}34322$$

c. Determine Z

$$Z = \frac{x - Mx}{SDX} = \frac{x - 78}{5{,}34322}$$

d. Determine P<Z (find it at table Z)

e. Determine a_2

a_2 is quarrel between fkb/N and P<Z

f. Determine a_1

a_1 is quarrel between f/N and a_2

Based on the explanation above the researcher determines the hypothesis as follow:

Ho : the data normal distribution

Ha : the data do not have normal distribution

Look at the Kolmogrorov-Smirnov' table with the standard significant 5% with N= 20 = 0,294

Criteria:

Decline Ho if a_1 (max) > D (table)

Accept Ho if a_1 (max) < D (table)

a_1 (max) = 0,244

D (table) = 0,294

So, the Ho is accepted. It means the data in experiment group have normal distribution.

Table 4.2

The Table of Normality Test on Control Class

X	F	f x	x^2	F x^2	fkb	f/N	fkb/N	Z	P<Z	a_2	a_1
75	1	75	5625	5625	14	0,0071	1,00	1,7837	0,9625	0,037	0,033
70	3	210	4900	14700	13	0.214	0,93	1,0702	0,8577	0,072	0,141
65	3	195	4225	12675	10	0,214	0,71	0,3567	0,6368	0,073	0.140
60	3	180	3600	10800	7	0,214	0,50	-0,3567	0,3632	0,136	0,077
55	3	165	3025	9075	4	0.214	0.29	-1,0702	0,1423	0,147	0,066
50	1	50	2500	2500	1	0,071	0,07	-1,7837	0,0375	0,032	0,038
Total	14	875		55375							

To determine some contents on the table above, the researcher use some formulas, such as:

a. Determine Mean

$$\text{M x} = \frac{\sum fx}{N} = \frac{875}{14} = 62,5$$

b. Determine of Standard Deviation

$$\text{SD}_x = \sqrt{\frac{\sum fx^2}{N} - \left(\frac{\sum fx}{N}\right)^2}$$

$$= \sqrt{\frac{55375}{14} - \left(\frac{\sum 875}{14}\right)^2}$$

$$= \sqrt{3955,36 - (62,5)^2}$$

$$= \sqrt{3955,36 - 3906,25}$$

$$= \sqrt{49,11} = 7,00785$$

c. Determine Z

$$Z = \frac{x - Mx}{SDX} = \frac{x - 62,5}{7,00785}$$

d. Determine P<Z (find it at table Z)

e. Determine a_2

a_2 is quarrel between fkb/N and P<Z

f. Determine a_1

a_1 is quarrel between f/N and a_2

Based on the explanation above the researcher determines the hypothesis as follow:

Ho : the data normal distribution

Ha : the data do not have normal distribution Look at the Kolmogrorov-Smirnov' table with the standard significant 5% = 0,349

Criteria:

Decline Ho if a_1 (max) > D (table)

Accept Ho if a_1 (max) < D (table)

a_1 (max) = 0,141

D (table) = 0,349

So, the Ho is accepted. It means the data in control group have normal distribution.

2. Homogeneity Test

Homogeneity test is used in the analysis of variance to verify that different groups have a similar variance. The test used Harley's test homogeneity. To do homogeneity test, the researcher uses some steps as follow:

Formula: $F\ (\max) = \frac{Var\ max}{Var\ min}$

a. Homogeneity test on Experiment Class

1) Make frequency distribution table

Table 4.3

The table of homogeneity test before using Jigsaw Technique (pre test)

x	f	f x	x^2	f x^2
75	3	225	5625	16875
65	3	195	4225	12675
60	4	240	3600	14400
55	3	165	3025	9075
50	7	350	2500	17500
Total	20	1175	-	70525

Table 4.4

the table of homogeneity test after using Jigsaw Technique (post test)

y	f	f y	y^2	f y^2
85	4	340	7225	28900
80	8	640	6400	51200
75	5	375	5625	28126
70	2	140	4900	9800
65	1	65	4225	4225
Total	20	1560	-	122251

2) Determine SDX

$$SD_x = \sqrt{\frac{\sum fx^2}{N} - \left(\frac{\sum fx}{N}\right)^2} = \sqrt{\frac{70525}{20} - \left(\frac{1175}{20}\right)^2} = 8{,}64219$$

$$SD_y = \sqrt{\frac{\sum fy^2}{N} - \left(\frac{\sum fy}{N}\right)^2} = \sqrt{\frac{122251}{20} - \left(\frac{1560}{20}\right)^2} = 5{,}34323$$

3) Use Harley's formula

$$F\ (max) = \frac{Var\ max}{Var\ min} = \frac{8{,}64219}{5{,}34322} = 1{,}61$$

4) Determine hypothesis

Based on explanation above the researcher determines the hypothesis as follow:

Ho : the data is homogeny

Ha : the data is not homogeny

Look at the F(max) table with the standard significant 1%

with db = (n-1;k) = (20-1;2) = (19,2); so, it can be obtained : 4,02

Criteria:

Reject Ho if F (max) value > F (max) table

Accepted Ho if F (max) value < F (max) table

F (max) value = 1,61

F (max) table = 4,02

So, the conclusion is accepting Ho. It means the data of experiment class is homogeny.

b. Homogeneity test on Control Class

1) Make frequency distribution table

Table 4.5

The table of homogeneity test before using Conventional Technique (pre test)

x	f	f x	x^2	f x^2
70	2	140	4900	9800
65	1	65	4225	4225
60	3	180	3600	10800
55	2	110	3025	6050
50	5	250	2500	12500
45	1	45	2025	2025
Total	14	790	-	45400

Table 4.6

The table of homogeneity test after using Conventional Technique (post test)

y	f	f x	x^2	F x^2
75	1	75	5625	5625
70	3	210	4900	14700
65	3	195	4225	12675
60	3	180	3600	10800
55	3	165	3025	9075
50	1	50	2500	2500
Total	14	875		55375

2) Determine SDX

$$SD_x = \sqrt{\frac{\sum fx^2}{N} - \left(\frac{\sum fx}{N}\right)^2} = \sqrt{\frac{45400}{14} - \left(\frac{790}{14}\right)^2} = 7{,}86701$$

$$SD_y = \sqrt{\frac{\sum fy^2}{N} - \left(\frac{\sum fy}{N}\right)^2} = \sqrt{\frac{55375}{14} - \left(\frac{875}{14}\right)^2} = 7{,}00785$$

3) Use Harley's formula

$$F\ (max) = \frac{Var\ max}{Var\ min} = \frac{7{,}86701}{7{,}007852} = 1.12$$

4) Determine hypothesis

Based on explanation above the researcher determines the hypothesis as follow:

Ho : the data is homogeny

Ha : the data is not homogeny

Look at the F(max) table with the standard significant 5% with db = (n-1;k) = (14-1;2) = (13,2); so, it can be obtained : 5,07

Criteria:

Reject Ho if F (max) value > F (max) table

Accepted Ho if F (max) value < F (max) table

F (max) value = 1,12

F (max) table = 5,07

So, the conclusion is accepting Ho. It means the data of control class is homogeny.

3. Calculate T- test

a. Determine the measurement table and hypothesis

Table 4.7

The Measurement Table of Experiment Class (Variable x)

X	f	fkb	x'	fx'	x'^2	f x'^2
85	4	20	2	8	4	16
80	8	16	1	8	1	8
75M'	5	8	0	0	0	0
70	2	3	-1	-2	1	2
65	1	1	-2	-2	4	4
Total	20	-	-	12	-	30

Table 4.8

The Measurement Table of Control Class (Variable y)

Y	f	fkb	y'	fy'	y'^2	f y'^2
75	1	14	3	3	9	9
70	3	13	2	6	4	12
65	3	10	1	3	1	3
60M'	3	7	0	0	0	0
55	3	4	-1	-3	1	3
50	1	1	-2	-2	4	4
Total	14	-	-	7	-	31

Test the Hypotheses:

Ho : The students who are taught by using jigsaw technique do not have better score in reading than the students who aren't taught by using jigsaw technique.

Ha : The students who are taught by using jigsaw technique have better score in reading than the students who aren't taught by using jigsaw technique.

b. Measure the Mean of X and Y

$M_x = M' + i\left(\frac{\sum fx'}{Nx}\right)$

$= 75 + 1\left(\frac{12}{20}\right)$

$= 75 + 0,6$

$= 75,6$

$M_Y = M' + i\left(\frac{\sum Yx'}{Ny}\right)$

$= 60 + 1\left(\frac{7}{14}\right)$

$= 60 + 0,5$

$= 60,5$

c. Measure standard deviation of X and Y

$SDx = i\sqrt{\frac{\sum fx'^2}{Nx} - \left(\frac{\sum fx'}{Nx}\right)^2}$

$= 1\sqrt{\frac{30}{20} - \left(\frac{12}{20}\right)^2}$

$= 1\sqrt{1,5 - 0,6^2}$

$= 1\sqrt{1,5 - 0,36}$

$= 1\sqrt{1,14}$

$= 1 \times 1,067707825$

$= 1,067707825$

$SDy = i\sqrt{\frac{\sum fy'^2}{Ny} - \left(\frac{\sum fy'}{Ny}\right)^2}$

$= 1\sqrt{\frac{31}{14} - \left(\frac{7}{14}\right)^2}$

$= 1\sqrt{2,214 - 0,5^2}$

$= 1\sqrt{2,214 - 0,25}$

$= 1\sqrt{1,964}$

$= 1 \times 1,4011427843$

$= 1,4011427843$

d. Measurement the standard error of variable x and variable y

$SE_{Mx} = \frac{SD_x}{\sqrt{Nx-1}}$

$= \frac{1,067707825}{\sqrt{20-1}}$

$SE_{Mx} = \frac{SD_y}{\sqrt{Ny-1}}$

$= \frac{1,4011427843}{\sqrt{14-1}}$

$= \frac{1,067707825}{\sqrt{19}}$ $= \frac{1,4011427843}{\sqrt{13}}$

$= \frac{1,067707825}{4,368898944}$ $= \frac{1,4011427843}{3,605551275}$

$= 0,244388309$ $= 0,388607088$

e. Measure SE_{M1-M2}

$$SE_{M1-M2} = \sqrt{SE_{Mx}{}^2 + SE_{My}{}^2}$$

$$= \sqrt{0,244388309^2 + 0,388607088^2}$$

$$= \sqrt{0,059725645 + 0,151015468}$$

$$= \sqrt{0,210741113}$$

$$= 0,4590654$$

f. Determine t_o

$$t_o = \frac{M_x - M_y}{SE_{Mx-My}}$$

$$= \frac{75,6-60,5}{0,4590654}$$

$$= \frac{15,1}{0,4590654}$$

$$= 32,89291678$$

$$= 32,8929$$

D. Discussion and Interpretation

Discussion is used to answer the hypothesis that Jigsaw Technique is effective used in increasing the reading achievement of eighth grade of students of MTs Al-Madani Ponorogo in academic 2015/2016. So, the next step is hypothesis test to the data (variable x and y) with interpretation.

Interpretation is consultation between t_t (t- table) and t_o (t –observation). If t_o higher than t_t ($t_o > t_t$), the result Ho is rejected and Ha is un-rejected. If t_o smaller than t_t ($t_o < t_t$), the result Ho is un-rejected and Ha is rejected.

Determine db (degree of freedom) with the formula:

$$db/df = (N_1 + N_2) - 2$$

$$= (20 + 14) - 2 = 32$$

So, db is 32 in the table. Then the score of t_o is consulted with t_t to the db = 32. For the 5% significant level, t_o = 32,8929 and t_t = 2,036 ($t_o > t_t$), so Ho is rejected.

Based on the result above, it can be concluded that ($t_o > t_t$). It means that: The students who are taught by using jigsaw technique have better score in reading than the students who aren't taught by using jigsaw technique.

Since the result of this research was effective, it is need to analyze the reasons why the Jigsaw Technique is effective. According to Kessler, jigsaw

technique makes students to develop their cognitive skill.[57] So this technique makes students easy to understand the text

Jigsaw Technique allows students to actively participate in learning process because jigsaw is one of the cooperative learning techniques. In cooperative learning students stimulated to think, solve the problem, apply their competence and knowledge.[58] Bruffe suggests that cooperative learning is a systematic teaching and learning strategy that encourages small groups of students to work together for the achievement of common goal.[59] In this activity, students are grouped and given tasks based on the cases or problems provided by the teacher.

According to Wichadee, the students who do not like to speak in large class are comfortable speaking out in a small group.[60] Group member can complete their strength and weakness in learning English reading because each student has different background and ability in learning English which he or she can bring to the group.

In groups, students tend to participate more equally, and they are also more able to experiment and use the language than they are in a whole-class arrangement. The students are working together without the teacher controlling

[57] Retna Oktaviana, *The Use Of Jigsaw Technique in Improving Students' Ability in Writing Text Descriptive*, Journal of English and Education 2014, 2(1) 64-65

[58] Li and Lam, "Cooperative Learning", Copyright 2005-2013 The Hong Kong Institute of Education,(Online) 15 November 2015.

[59] Sutanto Leo, A Challenging Book to Practice Teaching in English, (Yogyakarta: C.V ANDI OFFSET, 2013), 98

[60] Wichadee, The Effect of Cooperative Learning on English Reading Skill and Attitudes of The First Year Stusents at Bangkok University Bangkok , Bangkok : BU Academic.

every move; they take some of their own learning decision. So, it makes students easy to share their problem with their friends that makes reducing the student's difficulties in reading text.

CHAPTER V

CLOSING

A. Conclusion

Based on the result of data calculation on the previous chapter, can be drawn a conclusion that there is a significant difference between students' reading score. The students of experiment class who had been taught using Jigsaw technique in reading gained better score. It can see at the result of using jigsaw technique in teaching reading to the eighth grade students of MTs Al-Madani Ponorogo in academic year 2015/2016 that is obtained before; for the experiment class (VIII A), the average from post test is 75,6 and for the control class (VIII B), the average from pre test is 60,5. After applying jigsaw technique for the experiment class (VIII A), the average from post test is 78 and for the control class (VIII B), the average from pre test is 62,5.

The use of Jigsaw technique is also effective to increase students' reading score. It can be obtained through the calculation of T-test. Based on the result of data analysis in chapter IV, it can be conclude that ($t_o > t_t$). As the consulted with 5% significant level with db= 32, it is obtained $t_o = 32,8929$ and $t_t = 2,036$ so Ho is rejected. It means the jigsaw technique is effective used to increase the students' reading score of eighth grade students of MTs Al-Madani Ponorogo.

The use of Jigsaw Technique in teaching reading had helped both the teacher and the students as well. Jigsaw Technique enabled the students to understand the text by discussed on group. It also helps the teacher to make a good teaching and learning process in the class, because each student have a role and more active in the classroom, to make their own comment about solving the problem on their group in order to answer the question and make thing done.

B. Recommendation

In line with the conclusion previously, here are some suggestions that can be given to all the readers, and hopefully anyone who read this thesis can take the benefits. The suggestions are as follows:

1. English teachers are hoped to develop their creativity in teaching English, so that the students' boredom in learning English, especially in reading, can be avoided.
2. The teachers are suggested to use appropriate teaching technique. In this case, English teachers can also use Jigsaw Technique, not only in teaching reading, but also in teaching other English text types and other material of English subject as well. There are some reasons underlying the researcher's suggestions:
    a. Jigsaw Technique makes students to actively participate in learning process and they can share their difficulties in learning with their friends.

b. Jigsaw Technique is teaching technique that used in many subject. Based on the result of research, it also effective used in teaching reading to the eighth grade students in MTs Al-Madani Nurul Huda Ponorogo in academic year 2015/2016.

3. This research result can be used for the other researchers as the basis to conduct a further research in teaching reading by using Jigsaw Technique.