THE APPLICIATION OF JIGSAW TO IMPROVE STUDENTS' READING SKILL

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Abstract

This thesis is entittled"The Appliciation of Jigsaw to Improve Students' Reading Skill (an Experimental Teaching) at an SMP Negeri.The problem of this research is the students at the SMP had difficulties in comprehending a text to finding main idea. The aims of this research are to improve students reading skill by applying jigsaw as learning model. The objective of this research is to know whether the appliciation of jigsaw improve students' reading skill. The population of this research was three classes of second grade at an SMP with 69 students. The sample was two class of second grade $VIII_b$ class there 23 students and $VIII_c$ class there 20 students. The instrument of the research was pre-test and post-test. Technique of data analysis used statistical technique such as: mean, standard deviation and t-score. Analyzing the data collected, it was found that the mean of the pre-test of experiment class is 46.73 and control class is 52 the standard deviation of experiment class is 9.78 and control class is 7.96 and t- score of both of them is 5.32 it was found that the mean of post-test of experimental class is 72.82 and control class is 68 the standard deviation of experiment class 7.16 and control class 7.31 t score of both of classes is 6,98. It is not within the limit given ($-1,71 \geq t \geq +1,72$). The result indicates that the Experiment class performance in teaching reading by using jigsaw better than control class. It means that the difference between the two classes is significant. Therefore, the alternative hypothesis is accepted and null hypothesis is rejected. It is mean that the application of jigsaw to improve students' reading skill is effectives technique in learning.

Key Words: *Jigsaw, Reading Skill*.

INTRODUCTION

Language is one of the most important things used as a tool of communication among the nations in all over the world. As an international language, English is very important and has many interrelationships with various aspects of life owned by human being. In Indonesia, English is considered as the first foreign language and taught formally from elementary school up to the university level (Brown, 1987: 67). In English, there are four skills that should be mastered they are: listening, speaking, reading, and writing. Because of it many students are not interested in learning English because they think learning English is very difficult.

The difficulty of learning English is not only at junior high school but also at the senior high school and even at the university. Because the process of learning English as foreign language is difficult to understand by students, so students dislike to learn English. Every school in Indonesia has to give the best teaching for students with

quality teacher/professional teacher. Many teachers recognize need for change at schools to improve students' ability in many fields especially in English language because English language always needed to fulfill work field, for example: as tourism, a trading, a teacher, businessman, writer, interpreter etc. (Brown, 2009: 36)

One of basic skills in mastering English is reading. Reading is an activity to get information from the book read. This is an active process; this is true that through reading someone can get good knowledge and amount of information. In this process, the reader has to understand the meaning of the text gotten.

The human brain is hard wired to learn spoken language, and it is therefore a naturally occurring process (Shaywitz, 2003: 69). Typically, simply exposing hearing children to spoken language allows them to acquire and produce speech. Learning to read, however, is not "natural" for children. It has to be explicitly taught; exposure to text and print is not enough for the majority of the population.

Reading is one of the most important activities in students' lives. Without reading students would not be able to acquire knowledge that is fundamental to intellectual growth. Through reading the students become experts in fields. (Marry, 1997: 44)

By reading, students can obtain any information from printed language to meaning. It is an activity of one's thinking process in interpreting sigh, letter, and symbols. This process is done by skill the reading materials as printed language in order to get clear meaning of the text. To improve students can read well they can comprehend reading material by getting the idea of it. This is proved as (Heilman 1967: 6) say :"the production of interacting with printed language should be skill". From the statement it can say that one should be able to skill any kind of printed languages to give a product to them.

The presentation of reading skill material could be done in many ways. Many students in second class at the SMP still less in reading skill so,the writer interested to appliciate cooperative learning type of jigsaw in this class because jigsaw is match and easy to uderstand by students in learning reading.

Cooperative learning is a diverse group of instructional methods in which small groups of students work together and aid each other in competing academic tasks. An impressive body of experimental research has found cooperative learning to be an effective instructional method (D. W. Johnson, Maruyama, and friends, 1996: 53). Cooperative learning is widely used in current programs for educational reform.

Based on Muslimin Ibrahim (2000: 86) jigsaw is cooperative learning model with small groups which have 4-6 students in heterogeneous. Students are together and responsibility to complete materials in learning and convey the material to the other group. According to Mohamad Nur (2005: 69) Jigsaw is type of cooperative learning which learning model in design to improve student's responsibility about their learning and other person. Students not only study about the material which si given by teacher, but they must be ready give and explain the material to their group.

Jacob (1999: 103) stated that Jigsaw technique is a method of organizing classroom activity that makes students dependent on each other to succeed. It breaks classes into groups and breaks assignments into pieces that the group assembles to complete the (jigsaw) puzzle. It was designed by social psychologist Elliot Aronson to help weaken racial cliques in forcibly integrated schools.

The technique splits classes into mixed groups to work on small problems that the group collates into a final outcome. For example, an in-class assignment is divided into topics. Students are then split into groups with one member assigned to each topic. Working individually, each student learns about his or her topic and presents it to their group. Next, students gather into groups divided by topic. Each member presents again to the topic group. In same-topic groups, students reconcile points of view and synthesize information. They create a final report. Finally, the original groups reconvene and listen to presentations from each member. The final presentations provide all group members with an understanding of their own material, as well as the findings that have emerged from topic-specific group discussion. Perhaps, students often find difficulty in reading and how to different among verb, adjective, adverb, and noun. In teaching learning process faces many problems, For example, when the teacher explained some topic, some of student look bored, annoying their friends, they can't keep silent. So, Jigsaw is one of way how to solve the problem less stressful and more relaxed.

Tirabidah (2009: 6 and 42) was done the research at Second Grade Junior high School, with the title "The Impact of Jigsaw Cooperative Learning Model on the Achievement of the Second Grade Junior high School Students in Reading Comprehension". This study is intended to find out if there is significant difference in reading comprehension score between students who are taught by using jigsaw cooperative learning model and those who are taught by using conventional method.the result of that study shows that the jigsaw cooperative learning model has reasonably affected the students' ability in their reading comprehension.

Based on the explanation above, the writer is interested to improve students' reading skill in appliciation jigsaw for students. Therefore, the writer is interested in conducting a research, entitled: "The Appliciation of Jigsaw to Improve Students' Reading Skill".

REVIEW OF LITERATURE

Reading

At the initial level, reading usually begins with an introduction to the sound of the English alphabet with pronunciation. Children in Indonesia since the beginning has been to learn to write Indonesian language support with the Latin alphabet. It was advantageous for students in Indonesia because same letter with English language. (Broom, 1951: 113)

Reading is the one of four language skills. It is the first direct communication of students to acquire their language development. After years of listening and speaking, students further goes to school where for the first time, they learn to read before writing. Reading is a process in which done by reader to get message or information from the writer through printed media. It is very complex process in recognizing and comprehending written symbols which influenced by perceptual skill, decoding, experiences, language background, mind set and reasoning of reader (Tarigan, 2008: 65). According to Carrel (1988: 1), "Reading is not passive but rather than active process. It is an active cognitive process of interacting print media in which monitory comprehension to build up meaning".

Reading as A Language Skill

From the four integrated skills (listening, speaking, reading and writing skill), to the same extent reading should be stimulated when the students need to create the sense condition. In other words, the students will be guided to find the real answers of question they have in mind. Purposeful reading is encouraged by creating an interest in content, by trying in the new experience with personal background of the learning, by systematically extending the reading vocabulary (Betts, 1998: 13).

Ying (2001: 34) states that "reading is the process of recognition, interpretation and perception of written or printed material. Meanwhile Godman says reading is a psycholinguistic guessing game, consisting of cycle of sampling, predicting, testing and confirming.

According to Grellet (1981: 53) reading may be classified as four simply categories, intensive reading, extensive reading, skimming and scanning (Cited in Ommagio, 1986: 27) Suhirman (2002: 51) further mentions as follows:

1. Intensive reading is reading activity that is being related to further progress in language learning under the teacher guidance. In this type of reading, control from a teacher is compulsory and it will provide a basis for elucidation of difficulties of structure, and for the extension of vocabulary. To the same extent, Finnonchiro (1983: 32) also glanced that the intensive reading when the student's attention should be focused on all expression, nations sound, structure and cultural allusions will be unfamiliar to them in passage.
2. Extensive reading is developed at the student's own pace according to his individual ability (Rivers, 1968: 83) and (Suhirman, 2002: 41). In this extent, the activity is not completely controlled by the teacher. The students have learner to read without the teacher's role. The extensive reading activity is mostly concerned with the purpose of training students to read directly and fluently by his/her own employment, without the aid of the teacher. Structures in the test will be already familiar to him and new vocabulary will be introduced slowly in such a way that its meaning can be deduced from the context.
3. Skimming there are great many materials related to each professional area, the students must be taught to be selective. Skimming techniques will enable them to select the worth reading.
4. Scanning helps the student search quickly of the specific information he wishes to get from the material, such as finding the meaning of a word in a dictionary, finding the heading under which required information appears an index, finding statistical information in tables, charts, or graph, and finding the answers to certain questions from the text.

   From linguistics point of views, reading is recording and decoding process. Not like speaking which just involves an encoding process reading applies decoding process by which a reader must grasp and guess the meaning of written words used in writing scripts, reading the symbols to the oral language meaning. Anderson in Tarigan (1991: 58) and Suhirman (2002: 91).

Techniques of Reading Learning

In teaching reading skill, in particular can be distinguished, are:

1. Reading Aloud

It can be implemented to train students to read with the correct pronunciation or speech. Reading aloud that typically use techniques aimed to look and say can pronounce the words, phrases and sentences with correct except pronunciation English teacher, also need to exercise pressure and intonation correct English. As a model to be emulated by the students, the teacher should have the capability and sufficient English language skills.

2. Silent Reading

Reading "heart" or silent reading train students to really focus or mind in order to understand the content of the discourse or text. Teachers need to make observations when students do silent reading.

3. Reading Comprehension

To obtain information from the text or material that is read. Therefore, students are actually trained to read in order to obtain information about the content of reading.

According to Paul (2003: 85-86) learning to read English foreign language in Asia also often use whole-word approaches. Students as learners' beginners learn the words, such as paints, dogs and ship as a freelance no word in the sentence. Many children read these words to memorize the spelling, for example, c-a-t = cat.

4. Independent Reading

Children need time to look at the writing or reading text language learning and guessing the meaning of words in context. In this case, they can be helped by the existing image in the book of readings. Help students become independent readers an attempt to develop students' language skills. By reading, they will be skilled to speak and write.

Some Purposes of Teaching Reading

Each reader must have a purpose when reading a printed material. This purpose is reasonably affected by his need. Harmer (1991: 191) divides the purposes of reading in six categories, they are; reading to confirm expectations, reading to extract specific information, reading for communication tasks, reading for general understanding, reading for detailed comprehension (information) , and reading for detailed comprehension (function and discourse). The explanation of them as follow;

1. Reading to confirm expectations

The students are involved in reading in order to confirm their expectation about the information they think the text will contain. Students are encourage to become interested in the subject matter in the text. Reading to confirm expectations encourages students to predict the content of the text, and gives them an interesting and motivating purpose for reading.

2. Reading to extract specific information

The students should see the question or tasks they are going to answer or perform before reading the text. By doing this, it will be possible for them to read in the required way. They have to read the text only to extract the information which the questions demand, they do not have to worry about parts of the text they have difficulty but only those they need to extract the required information.

3. Reading for communicative tasks

The reading of a text is designed to foster a communicative interaction in teaching reading process. The teacher will devide class into two halves. Half of the

class are given the text and told them to read it so that they will be able to answer their collages'questions. They will put down the text when they answer the questions. The other half are put into a group to decide what questions they would like to ask. It is important to be sure that both halves of the class have a chance to read, the teacher can do this activity more than once.

4. Reading for general understanding

Reading for general comprehension involves students to absorb only the main points of the text. The reader is not looking for specific points, but rather for whatever is necessary to get an overall understanding of the text. Here are five standard questions for general understanding: what is the text about? Who was it written by? Who was it written for? What is the writer's intention? Do you like it? The answer is not always abvious.

5. Reading for detailed comprehension (information)

It can give students a valuable opportunity to study written English in detailed and thus learn more about the topic and about how language is used. The students need to read between lines to understand the text in detail to answer the question and we expect students to be able to acces on the second reading.

6. Reading for detailed comprehension (function and discourse)

It is important for students to understand the way in which texts are understand, and to recognize the functions that are being performed (e.g. context quetions, identifying, function, and identifying paragraph structure). And then, the students can be made aware of discourse structure that goes into writing and they must be able to decode to understand the text carefully.

Cooperative Learning

Cooperative learning is from word cooperative, means do something together with mutual support each other as one group or one team. Slavin (1995: 15) says, "In cooperative learning methods, students work together in four member teams to master material initially presented by the teacher".

Cooperative learning is a well researched teaching strategy. It utilizes small teams using a variety of learning activities to improve students' understanding of content and develop inquiry and social skills, because each team member is responsible and also helping team members. An atmosphere of achievement and team spririt develop (LoGuidice 2005: 125)

Jacob (1999: 97) says that cooperative learning is a diverse group of instructional methods in which small group of students work together and aid each other in completing academic tasks. Whereas Johnson (in Hasan, 1994: 15) says," cooperanon means working together to accomplish shared goals. Within cooperative activities individuals seek outcomes that are beneficial to all other groups' members. Cooperative learning is the instructional use of small group that allows students to work together to maximize their own and each other as learning".

Cooperative learning is a learning model at the moment which many use to form teaching learning activity which is center to students (student oriented) mainly to superintend the problems which is find by teacher in students activate, which can not work together with each other, aggressive student and not care about each other.

Cooperative learning is a diverse group of instructional methods in which small groups of students work together and aid each other in competing academic tasks. An

impressive body of experimental research has found cooperative learning to be an effective instructional method (D. W. Johnson, Maruyama, and friends, 1996: 53). Cooperative learning is widely used in current programs for educational reform.

Characteristics of Cooperative Learning

Bannet (1995: 41) said, there are 5 basic elements can difference cooperative learning with group activities that are:

1. Positive interdependence, the relationship based on their common interests or feelings among members of the group in which a person's success is the success of others or the other way.
2. Interaction face to face, namely the interaction between students without any intermediary.
3. The existence of responsibility regarding the subject matter of group members so that students are motivated to support their friend, because the goal of cooperative learning is to make every member of the group becomes stronger personality.
4. Needed attractive, creating personal relationships, developed the ability of group, and maintain an effective working relationship.
5. Improve work together skill in analyze the problem (group process), which is the most important can be achieved in a cooperative learning is students learn skills and needed in the society.

The elements of cooperative learning are follows:

a) The existence of positive interdependence
b) Mutual interaction or face-to-face
c) The presence of communication between members of group
d) The existence of responsibility as a member or individual
e) The existence of evaluation process in the group
f) There is element information gap that makes the child feel learning, from not knowing to knowing.

Brown and Ciuffetelli Parker (2009: 17) and Siltala (2010: 26) discuss the 5 basic and essential elements to cooperative learning:

1. **Positive interdependence**
    a. Students must fully participate and put forth effort within their group
    b. Each group member has a task/role/responsibility therefore must believe that they are responsible for their learning and that of their group
2. **Face-to-face promotive interaction**
    a. Members promote each other's success
    b. Students explain to one another what they have or are learning and assist one another with understanding and completion of assignments
3. **Individual and group accountability**
    a. Each student must demonstrate mastery of the content being studied
    b. Each student is accountable for their learning and work, therefore eliminating “social loafing”
4. **Social skills**

a. Social skills that must be taught in order for successful cooperative learning to occur
b. Skills include effective communication, interpersonal and group skills
    1. Leadership
    2. Decision-making
    3. Trust-building
    4. Friendship- development
    5. Communication
    6. Conflict-managementskills

5. Group processing

a. Every so often groups must assess their effectiveness and decide how it can be improved

In order for student's achievement to improve considerably, two characteristics must be presented:

1. When designing cooperative learning tasks and reward structures, individual responsibility and accountability must be identified. Individuals must know exactly what their responsibilities are and that they are accountable to the group in order to reach their goal.
2. All group members must be involved in order for the group to complete the task. In order for this to occur each member must have a task that they are responsible for which cannot be completed by any other group member.

Models of Cooperative Learning

According to Gagne (1985: 50)" Learning is an active process and suggests that teaching involves facilitating active mental process by students".

Learning model according to Joice and Weil (1990: 50) is something system or plan was planning and use to curriculum arrange, arrange lesson material, and give instruction to teacher in the class.

In cooperative learning there several model variation which is can use, that are:

1. Student Team Achievement Division (STAD) This type developed by Slavin and is one type of cooperative which emphasizes on the activity and interaction among students to motivate each other and help each other in mastering the subject matter in order to achieve maximum performance.
2. Group Investigation (GI), in this model the students are divided into groups can be formed based on friendship or relationship will be based on a material without breaking the characteristics of cooperative learning.
3. Rotating trio exchange on this model, the class is divided into groups consisting of three students, classes arranged and each group can see the other groups in the left and in the right, gave to each groups the same question for discussion.
4. Group resumes this model will make better interaction between students, class is divided into groups, each groups consisting of 3-6 of students.
5. Jigsaw is one type of cooperative learning that encourages active students and mutual support in mastering the subject matter to achieve maximum performance.

From any learning model mentioned which many use is Student Team Achievement Division STAD and Jigsaw.

Teacher's Characters in Cooperative Learning

In learning model cooperative learning the teacher must be able to create the class as democracy laboratory, so that trained student and habitual difference opinoin. This habitual important to do since in the school, student habitual to difference opinion, honest in admit self advantage and can approve other opinion more, and capable search fission problem.Teacher character in doing cooperative learning as fasilitator, mediator, director-motivator dan elevator.

"No longer are teacher a direct supervisor of students, responsible for insuring that they do their work exactly as a teacher direct. No longer is it responsibility to watch for every mistake and correct it on the spot. Instead, authority is delegated to students and to groups of students. They are in charge of insuring that the job gets done, and that classmates get the help they need. They are empowered to make mistakes, find out what went wrong, and what might be done about it".Organising cooperative learning the teacher is not anymore giving the information, instead teacher is organising the acquisition of the information. This new way of things makes the teacher develop new skills, attitudes and fulfil different roles the teacher as: Timekeeper, Supporter, Initiator, Inspirer, Analyser, Observer, Manager, Encourager, Participant, Adviser, Helper, Evaluator, Poducer, Designer, Motivator organiser, Controller, Researcher, Friend and Judge.

Jigsaw

Jigsaw is type of cooperative learning which learning model in design to improve student's responsibility about their learning and other person. Students not only study about materials which are given by teacher, but they must be ready give and explain the material to their group.

Defined broadly, Jigsaw is a grouping strategy in which the members of the class are organized into "jigsaw" groups. The students are then reorganized into "expert" groups containing one member from each jigsaw group. The members of the expert group work together to learn the material or solve the problem, then return to their "jigsaw" groups to share their learning.

Introduced by Aronson (1978: 43), Jigsaw is an efficient way for students to become engaged in their learning, learn a lot of material quickly, share information with other groups, minimize listening time, and be individually accountable for their learning. Since each group needs its members to do well in order for the whole group to do well, Jigsaw maximizes interaction and establishes an atmosphere of cooperation and respect for other students. Teachers who listen in to the sharing of one of the jigsaw groups can quickly hear what each of the original groups has been doing.

Aronson (1978: 47) compared classes that used the cooperative jigsaw approach with classes in which students worked in competitive groups. He found that children in the jigsaw classrooms outperformed children in competitive classrooms in terms of mastery of classroom material. Black and Hispanic children performed significantly better in jigsaw classrooms than in competitive classrooms.

Jigsaw is an alternative strategy, developed by Robert Slavin (1990: 31). The process is as described above, with the exception that students in jigsaw groups read the

entire assignment or all of the materials to acquire the information. Group members then take an individual test on the material, the results of which contribute to a team score.

Coopeative learning jigsaw is type cooperative learning which push student active and mutual support in comprehend lesson material to get maximal achievement.

Students work together in each group must be limited, so that formed groups can work together with efective, because a form of group influences productivity skill. In this matter, Soejadi (2000: 55) said, when more large sum of member in one group, can cause less efective cooperation with other member.

Jigsaw model can using in a efective for each level students was get academic skill from comprehension, reading or group skill for study together. Kind of material more easy to use in this approachment is narrative text like find on literature, reading social research and science. Lesson material must be develop concept than develop skill as general purpose.

In jigsaw technique which develop by Aronson and friends, teacher observe schematic or background students experience and support students to active this schmatic so that the lesson material be more meaning. Beside that, students work with other students in mutual assistance and have many opportunities to process information and improve communication skills which match.

Learning model of jigsaw is begins with an introduction the topics to discussed by teacher. Teacher can write topics to study on the white board, serving power point and so on. Teacher asks to students what they know about the topic. Brainstorming activity is intended to activate schematic or cognitive structure of students to be better prepared new learning activity.

Furthemore, teachers divide the class into smaller group, the number of group of depends on the number of concepts contained in the topic. If in one class there are 40 people, each group consisting of 10 people. These groups are called home teams.

After the original group was formed, the teacher distributed the materials to each group. Every person in the group is responsible for studying the material from the teacher. The next session, forming expert teams. The number of expert teams remained 4. Each expert teams has 10 members from each home teams. Because each member of home teams is 10 people, then set such for each member of the expert teams there different of home teams are.

After formed an expert teams give them the opportunity to discuss. After finished, they went back to home teams and discussion groups. Discussion with the whole group needs to be done; the teacher gives a review of the topics that have been studied.

Steps of Jigsaw

Generally, teacher needs to organize students into a group in teaching learning process by using jigsaw. The teacher also needs the step to set up the group. According to Aronson (2000: 86) jigsaw has ten steps in teaching namely:

1. Divide students into five or six person jigsaw group. The group should be deserved in terms of gender, ethnicity, race and ability.
2. Appoint one student from each group as the leader, initially, this person should be the most mature student in the group.
3. Devide the day's lesson into five or six part.

4. Assign each student to learn one part, making sure students have direct acces only to their own part.
5. Give students time to understand their part of work at least twice and become familiar with it, there is no need for students to memorize it.
6. From temporary "expert group" by having one student from each jigsaw group join other students assigned to the same segment. Give students in these expert group times to discuss the main points of their segment and to rehearse the presentations will make to jigsaw group.
7. Bring the students back into jigsaw group
8. Ask each student to present segment to the group. Encourage others in the group to ask questions for clarification.
9. Float from group to group, observing the process if any group is having trouble (e.g a member is dominating or disruptive) make an appropriate intervention.
10. At the end of the session, give a quiz on the material so that students quickly come to realize that these sessions are not just fun and game.

The Impact of Jigsaw Cooperative Model in Teaching Learning Process

According to Slavin (1995: 39), of forty-three studies of cooperative learning methods, thirty two found possitive effects on achievement. Studies of methods that used group goals based on a single group product product or provide no group reward found few positive effects. He found that although all group showed improvements in oral performance and aural comprehension.

Miritz (1989: 131) conducted a study to expand the knowledge base concerning cooperative learning in enhancing reading achievement. This study addressed seven research questions. A number of null hypotheses were formulated on the basis of the literature review of grouping practice and goal structures.

Jigsaw is useful in a second langage classroom for a reading selection. In their expert groups, students could discuss new vocabulary in adition to important ideas in the reading before reporting back to their groups. This would be very conducive to discussion and negotiation in the target language due to the explanation of new material that other group members have not seen. As seen in research by Pica (1994: 73), negotiation has been shown to improve student comprehension. However, it is important that the teachers prepare their students to read, to ensure good comprehension of the material.

Advantages and Disadvantages of Jigsaw

There are some advantages and disadvantages of jigsaw that should be known. One of them is to make students learn without feeling that was learning. As documented by Aronson and Patno (1997: 64) there are five advantages in using jigsaw, improve attitudes toward school, increase self-esteem, improved academic achievement, and improved perception of support from peers for academic efforts, and the last is lower absenteeism. The advantages are shown that jigsaw is very good to be used in learning process. It can be improved the students' manner in class when work, then feel confident when start to finish own part of work. In this advantage the students are also improved the academic achievement in class, receive and give support to teammates for academic attempt. In lower absenteeism, the students try to present every day in class to take responsible of own work.

The jigsaw also has disadvantages. One of them, it take much time to organize the group, the teacher should make groups that combine the students who have the different intelligences. Second, students do not get into group quickly enough for read initial texts quickly enough, it will run out of time. Third, one or two disobedient students do not participate a whole group or two will lose out on a piece of the text. The class situation become noisy, so the teacher needs to control the students. And the last, the teacher can not monitor all groups at once.

Earlier of Studies

Bagus Novianto (2012: 5 and 47) was done the research with the title Improving Reading Comprehension Skills by Using Jigsaw Technique at The Second Years of SMAN 1 Kalasan in the academic years of 2011/2012. The objective of this research study is to improve reading comprehension of Grade XI students of SMAN 1 Kalasan through jigsaw technique. The results of the research show that using jigsaw technique can improve the students' reading comprehension and the students' reading involvement in the reading class.

The research was done by Desy Windasari (2013: 5 and 41) a student in English Education at Unsyiah. The title" Using Jigsaw In Teaching Writing Descriptive Text for Junior High School Students" this study to show how jigsaw helps students in generating their ideals in writing descriptive text based on the analysis of some theories and research finding related the appliciation of jigsaw in teaching writing skill.

RESEARCH METHOD

Research Design

Before start doing the research, the writer asked for permission from the headmaster of the SMP to start this research, then the writer asked for school records and archives. After getting permission from headmaster then the writer start to research at second class $VIII_b$ and VIIIc. In this study, some test is used to measure the students' reading skill and was administrated twice: namely pre-test and post-test. The pre-test was used to see the students' previous ability in reading skill then the writer explain about reading narrative text by using of jigsaw and give post-test used to see students' achievement in reading skill by using jigsaw. There were six meeting in this study.

This study included in quantitative approach, because the writer conducts an experimental study and analyzes it by using formula statistical technique such as: mean, standard deviation, and t-score. In quantitative approach, the writer gives the test to the student directly to know their ability in mastering English. In this study, the writer used pre-test and post-test to bring the data together and to prove the available hypothesis.

The research teaching takes about one Month the beginning of second semester of the academic year 2015/2016. In doing this, the writer uses the material from curriculum of the SMP. At the end of this program, the writer give post-test to get the result of teaching reading skill by using jigsaw.

The Population and Sample

Population as generalizing region which consist of object or subject which have certain characteristic and have same opportunity to be selected become of sample. According to Arikunto (2006: 130-131) "population is all of research subject". The

research population is all students at the SMP which totaled 177 students. In *Encyplodia of Education Evaluation*, it was explained that a population was a set or collection of all elements possessing one or more attributes of interesting.

Sample is small element of a population. Sample is the population in a research. To facilitate the implementation of the research, the writer took samples there are two classes $VIII_b$ and $VIII_c$ at the SMP. Those are class $VIII_b$ is the experimental Class (EC/23 students) and the other class is $VIII_c$ as the controll Class (CC/20 students).

Base on Suharsimi Arikunto (1995: 120) sampling is subject research as reprensentative from population until get sample who reprensentative it population. More characteristics who was had in population, and less subject who rounded up in population and the opposite.

Instrument of Research

According to Suharsimi (1993: 67) instrument which used in data collection must be data accomodating needed in analysis. The instrument is the tool or facility that can be used by the writer in setting the data to make more easily Arikunto, (2002: 136). The instrument used in this research to collect the data was test pre-test and post-test.

a. Pre-Test

To know and to get information about classroom situation, the writer taught the students about reading materials. In this study, the writer explained how to read well by giving the material; the writer gave pre-test to the students in order to know how far they had studied how to understand reading before. Pre-test was given before teaching learning process occurred. It was available either to experimental class or control class to find out the first data before treatment.

The type of the items that the writer used in pre-test was completion. In the completion form, the writer asked the students to read and understand the topic about narrative text that is "Cinderella" and answer the questions based on the text of "Cinderella" by using jigsaw for control group and for experimental group.

b. Post-Test

To know the students' skill in reading by using jigsaw and to get the result of teaching reading by using jigsaw to improve students' reading skill, the writer gave post-test at the end of the teaching. Post-test was given after teaching learning process to find out the data after treatment.

Technique of Data Collection

The data had been conducted in academic year 2015/2016. The technique of data used was test. Test is one of the techniques used to identify the students' reading skill. Test will be given twice: pre test and post test in two class of second class $VIII_b$ and $VIII_c$ at the SMP. The test consisted of fifteen questions there are five filling the blank questions, five multiple choice questions and five essay questions. The reading about narrative text and this theme consists of two topics "Cinderella" for pre-test and then the writer will explain about reading by using learning model of jigsaw. On the next day the writer give post-test with the topic "Rabbit and Bear" .The students only answered the questions based on the text. The purpose of giving test to the students is to know their mastery in reading skill before and after using jigsaw in differences class.

Technique of Data Analysis

The data analysis was conducted by organizing the collected data systematically. The data were grouped and classified in order to get the data needed. This was done to help the writer for the purpose of interpretation. The data gained through pre-test and post-test.

To analyze of the data, the writer used statistical technique, such as mean, standard deviation and t-score. The average score of the students (mean) which is symbolized by X. it can be obtained by using the formula as used by Muller (1970: 136) as follow:

$$\overline{X} = \frac{\Sigma x}{N}$$

Explanation:

$\overline{X}$: Mean

$\sum x$: Frequency multiplied by deviation

N : The number of student

Standard Deviation

The standard deviation symbolized by SD is calculated by using the following formula as stated by Muller (1970: 136) as follows:

$$SD = \sqrt{\frac{\sum X^2}{n} - \left(\frac{\sum X}{n}\right)^2}$$

Where :

SD : Standard Deviation

N : Number of students

$\frac{\sum x^2}{n}$: Each score squared then summed and then divided by n

$\left(\frac{\sum x}{n}\right)^2$: All score summed the divided by n then squared

Significant Difference, (Sugiyono, 2004: 32)

$$t = \frac{X_e - X_c}{\sqrt{\frac{SD_e{}^2}{n} + \frac{SD_c{}^2}{n}}}$$

Where:

t : The significant differences between two mean

X_e : The mean of experimental group' score

X_c : The mean of control group's score

SD_e : Standard deviation of experimental group

SD_c : Standard deviation of experimental group

n : The number of the students of experimental group

n : The number of the students of control group

RESULT AND DISCUSSION

The Result

This chapter contains a description of the results of research and processing of data regarding the application of jigsaw learning model to improve student's reading on

the subjects in English second class at an SMP. The appliciation of jigsaw learning model is in demand by students; the students are more active in asking.

The writer intended some collated data which was thought pre-test and post-test. In teaching learning process, a test was needed to obtain result of teaching. Besides, it was useful to find out how far the students understand the materials that had been taught by the teacher. In this way, teacher could evaluate to effectiveness of the syllabus as well as methods and material was used.

Because of that, the writer gave the test to the student, the data about The Appliciation of Jigsaw to Improve reading Skill. In this study, the writer presented two kinds of test: they were pre-test and post-test. The pre-test was given to the student before the teaching learning process, and post-test was given to the students at the last meeting after teaching learning process.

To be clearer, it is better to see the data collected (students' scores) in the following tables.

Table 1: The Score of Pre-Test and Post-Test in Experiment Class ($VIII_b$)

No	Pre–Test (X_1)	Post–Test (X_2)
1	40	70
2	50	75
3	45	70
4	55	80
5	40	65
6	60	85
7	60	80
8	50	80
9	35	60
10	55	75
11	60	70
12	50	70
13	55	75
14	50	80
15	35	65
16	30	60
17	45	70
18	30	70
19	55	80
20	55	70
21	50	85
22	40	75
23	30	65
Total	**1075**	**1675**

Table 2: The Score of Pre-Test and Post-Test score in Control Class($VIII_c$)

No	Pre-Test (X_1)	Post-Test (X_2)
1	55	65
2	50	70
3	55	70
4	65	75
5	55	70
6	40	65
7	55	65
8	50	65
9	55	70
10	35	60

11	45	60
12	55	65
13	35	60
14	60	80
15	50	60
16	55	55
17	55	75
18	65	85
19	55	75
20	50	70
Total	**1040**	**1360**

Table3: The score of Pre Test in Experiment Class and Control Class

No	Experiment Class		Control Class	
	X_1	X^2	X_1	X^2
1	40	1600	55	3025
2	50	2500	50	2500
3	45	2025	55	3025
4	55	3025	65	4225
5	40	1600	55	3025
6	60	3600	40	1600
7	60	3600	55	3025
8	50	2500	50	2500
9	35	1225	55	3025
10	55	3025	35	1225
11	60	3600	45	2025
12	50	2500	55	3025
13	55	3025	35	1225
14	50	2500	60	3600
15	35	1225	50	2500
16	30	900	55	3025
17	45	2025	55	3025
18	30	900	65	4225
19	55	3025	55	3025
20	55	3025	50	2500
21	50	2500		
22	40	1600		
23	30	900		
Total	**1075**	**52425**	**1040**	**55350**

EC Pre-test

$$X_e = \frac{\sum X}{n}$$

$$= \frac{1075}{23}$$

$$= 46.73$$

CC Pre-test

$$X_c = \frac{\sum X}{n}$$

$$= \frac{1040}{20}$$

$$= 52$$

After is known the result of meant score of Experiment and Control class, the Writer can count standard Deviation each class.

$$SD_e = \sqrt{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2}$$
$$= \sqrt{\frac{52425}{23} - \left(\frac{1075}{23}\right)^2}$$
$$= \sqrt{2279.34 - (46.73)^2}$$
$$= \sqrt{2279.34 - 2183.69}$$
$$= \sqrt{95.65}$$
$$= 9.78$$

$$SD_c = \sqrt{\frac{\Sigma fx^2}{n} - \left(\frac{\Sigma fx}{n}\right)^2}$$
$$= \sqrt{\frac{55350}{20} - \left(\frac{1040}{20}\right)^2}$$
$$= \sqrt{2767.5 - (52)^2}$$
$$= \sqrt{2767.5 - 2704}$$
$$= \sqrt{63.5}$$
$$= 7.96$$

The score of SD_e and SD_s show the result of Experiment and Control class pre-test, so the writer can count the t-score.

$$t = \frac{X_e - X_c}{\sqrt{\frac{SD_e^{\,2}}{n} + \frac{SD_c^{\,2}}{n}}}$$
$$= \frac{46.73 - 52}{\sqrt{\frac{9.78^2}{23} + \frac{7.96^2}{20}}}$$
$$= \frac{5.27}{\sqrt{\frac{95.64}{23} + \frac{63.36}{20}}}$$
$$= \frac{5.27}{\sqrt{4.15 + 3.16}}$$
$$- \frac{5.27}{\sqrt{0.99}}$$
$$= \frac{5.27}{0.99}$$
$$= 5.32$$

The use of t score to see the significance of the difference between two class of pre-test it is between the limit given $-1{,}71$ and $+1{,}72$. Based on the statistical analysis it is found that pre-test score of both class is 0.36. so it is proper to take them for comparison in this study.

Table 4: The Score of Post-test of Experiment Class and Control Class

No	Experiment Class		Control Class	
	X_2	$(X_2)^2$	X_2	$(X_2)^2$
1	70	4900	65	4225
2	75	5625	70	4900
3	70	4900	70	4900
4	80	6400	75	5625
5	65	4225	70	4900
6	85	7225	65	4225

7	80	6400	65	4225
8	80	6400	65	4225
9	60	3600	70	4900
10	75	5625	60	3600
11	70	4900	60	3600
12	70	4900	65	4225
13	75	5625	60	3600
14	80	6400	80	6400
15	65	4225	60	3600
16	60	3600	55	3025
17	70	4900	75	5625
18	70	4900	85	7225
19	80	6400	75	5625
20	70	4900	70	4900
21	85	7225		
22	75	5625		
23	65	4225		
Total	**1675**	**123125**	**1360**	**93550**

EC Post-test

$$X_e = \frac{\Sigma x}{n} = \frac{1675}{23} = 72.82$$

CC Post-test

$$X_c = \frac{\Sigma x}{n} = \frac{1360}{20} = 68$$

After is known the result of meant score of Experiment and Control class, the Writer can count Standard Deviation each class.

$$SD_e = \sqrt{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2} = \sqrt{\frac{123125}{23} - \left(\frac{1675}{23}\right)^2} = \sqrt{5353.26 - (72.82)^2} = \sqrt{5353.26 - 5302.75} = \sqrt{50.51} = 7.10$$

$$SD_c = \sqrt{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2} = \sqrt{\frac{93550}{20} - \left(\frac{1360}{20}\right)^2} = \sqrt{4677.5 - (68)^2} = \sqrt{4677.5 - 4624} = \sqrt{53.5} = 7.31$$

The score of SD_e and SD_s show the result of Experiment and Control class pre-test, so the writer can count the t-score.

$$t = \frac{X_e - X_c}{\sqrt{\frac{SD_e^{\,2}}{n} + \frac{SD_c^{\,2}}{n}}} = \frac{72.82 - 68}{\sqrt{\frac{7.10^2}{23} + \frac{7.31^2}{20}}}$$

$$= \frac{4.82}{\sqrt{\frac{50.41}{23} + \frac{53.45}{20}}}$$
$$= \frac{4.82}{\sqrt{2.19 + 2.67}}$$
$$= \frac{4.82}{\sqrt{0.48}}$$
$$= \frac{4.82}{0.69}$$
$$= 6.98$$

The use of t score to see the significance of the difference between two class from post- test.

Based on the statistical analysis it is found that pre-test score of both class is 6.98. It is within the limit given (-1,71 ≥ t ≥ +1,72). Therefore the alternative hypothesis (H_a) is accepted and null hypothesis (H_o) is rejected. The result indicates that the Experiment class performance in teaching reading by using jigsaw better than control class.

Discussion

The data collated from experiment by using statistical formula is finished. If the t-score between (-1,71 ≥ t ≥ +1,72) is accepted and H_a is reject. But if the t-score is not within the limit given (-1,71 ≥ t ≥ +1,72) the H_o is reject. According to statistical analysis if the experiment and control class , it is founds that the means scores of the pre-test of both class are a little different (X_e of pre-test of Experimental class is 46.73 and Control class is 52). The standard deviation of Experimental class is 9.78 and Control class 7.96 and the t- score is **5.32**. So, it is assumed that the result both of them is almost the same or nearly in learning reading by using jigsaw.

The mean score of the post-test of experimental and control class is very different (X_e of post-test of Experimental class is 72.82 and Control class is 68). The standard deviation of Experimental class is 7.16 and Control class is 7.31. Meanwhile, the obtained t-score is 6.98 is not within without the limit given (-1,71 ≥ t ≥ +1,72). It means that the different between the two class is significant. Therefore, the research hypothesis (H_a) is accepted and the null hypothesis (Ho) is rejected.

CONCLUSIONS

Based on the result of the research that has been discussed in data analysis in the previous chapter, the writer would like to explain some conclusions.

The objective of this research study was to improve the reading skills at the students of an SMP through the use of jigsaw learning model.The writer concludes that the use of jigsaw to improve students' reading skill is an effectives technique because the writer found that students enjoyed the class by using jigsaw with topic narrative text. It proves that the use of jigsaw could motivate students and arouse students' interest in learning reading. There is significant difference between pre-test and post-test when the study was conducted. After analyzing the data collected, it was found that the mean of the pre-test of experimental class is 46.73 and control class is 52 the

standard deviation of experimental class is 9.78 and control cass is 7.96 t- score of both of them is 5.32 it was found that the mean of post-test of experimental class is 72.82 and control class is 68 the standard deviation of experimental class 7.16 and control class 7.31 t score of both of class is 6,98. It is not within the limit given ($-1{,}71 \geq t \geq +1{,}72$). The result indicates that score is higher than pre-test score of both class. It means that the difference between the two classes is significant. Therefore, the alternative hypothesis is accepted and null hypothesis is rejected. It is mean that the application of jigsaw to improve students' reading skill is effectives technique in learning.

The students got the improvement after teaching by using jigsaw. Therefore, it can be seen that the use of jigsaw to improve student's reading skill may achieve a better result. In the other words, it can also be said that the use of jigsaw as learning model for teaching can motivate and decrease the problem of students' reading like pronounciation, language use, vocabulary and organization. And finally, when the students are motivated and have no difficulties in reading, the teaching and learning process will automatically run well.

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