

INCREASING STUDENTS' READING COMPREHENSION BY USING JIGSAW TECHNIQUE

By

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ABSTRACT

The objective of the research is to find out whether jigsaw technique can increase students' reading comprehension on fifth semester of English Education Program Study of Tarbiyah and Teacher Training Faculty, State Institute for Islamic Studies Raden Intan Lampung.

This was a Classroom Action Research (CAR) which was conducted in two cycles. There were three meetings for each cycle. Not only teacher's activity, but also students' activity which were observed during the implementation of jigsaw technique in reading class. Finally, to know the increase of students' achievement the researcher used reading comprehension test. The test was given at the end of each cycle.

Result of the test which was given at the end of cycle 1 showed that there were 24 students or 71% of all who got higher score and 10 students or 29% of all who got lower score. Since the target of this research had not been reached, then the research was continued to cycle 2. Result of the test which was given at the end of cycle 2 showed that there were 30 students or 88% of all who got higher score. On the contrary, only 4 students or 12% of all who got lower score. Thus, this research was stopped because the target has been reached. Thus, the conclusion of this research was: Jigsaw technique can increase students' reading comprehension on fifth semester of English Education Program Study of Tarbiyah and Teacher Training Faculty, State Institute for Islamic Studies Raden Intan Lampung, in academic year 2013/2014.

Keywords: Jigsaw technique, reading comprehension, classroom action research.

I. INTRODUCTION

A. Background of the Problem

Reading is a complex process which involves not only the readers ability to read text but also their experience to comprehend it. It is very essential for students because by reading, the students will get much information and knowledge in their everyday life. Because of its complexity, that is why an English teacher

should think and choose wisely what technique to be used. Teaching reading is not only train the students understand the text given, but also comprehend the entire contents of the text.

Comprehension is reading ability to get the main idea, important detail, and whole understanding. To get the comprehension, we need: (1) master the vocabulary, (2) familiar with the basic structure in writing (sentence, paragraph, and grammar). The effective efforts to comprehend and remember (reading text) longer are: (1) organize the reading material, which can be comprehended easily, (2) combine one fact to another, or join the experience or real context.¹

Meanwhile Gordon Wainwright says that reading comprehension is complex process which involves the benefits of various succeed or failed capability. After reading, we should be able to remember the information in the text.²

Based on curriculum of Tarbiyah and Teacher Training Faculty of State Institute for Islamic Studies, Raden Intan, Lampung, reading is taught in English Education Study Program. It is taught in four semesters as 'Reading I', 'Reading II', 'Reading III', and 'Extensive Reading'. Reading III is one of the subjects which are presented in fifth semester. As a matter of fact, the researcher is the lecturer of Reading III. In the early meetings, reading class is conducted by using reading guide. In this case, the students are asked to read a text and answer the questions given based on the text. They do it even individually or in groups. They do it either individually or in groups.

After several meetings, the reading test was given. The result of the test can be seen on the table below:

¹ Soedarso. *Speed Reading : Sistem Membaca Cepat dan Efektif*: PT. Gramedia. Jakarta. 2001. P. 58

² Gordon Wainwright. *Speed Reading Better Recalling*. PT. Gramedia Pustaka Utama. Jakarta. 2006. P. 42-43

Table 1
Reading Test Score of Fifth Students of Tarbiyah and Teacher Training
Faculty Academic Year 2013/2014

No	Range	Criteria	Total of Students
1.	80 – 100	A	2
2.	73 – 79	B+	1
3.	65 – 72	B	9
4.	60 – 64	C+	11
5.	55 – 59	C	5
6.	49 – 54	D	2
7.	00 – 48	E	4
	Total		34

The table shows that more students who got lower score than those who got higher score. The sum of students who got higher score were 12 or 35% of all, meanwhile those who got higher score were 22 or 65% of all. This condition is probably caused by students' lack of reading comprehension.

The students can not comprehend the reading text well, possibly because they felt bored in teaching reading process since the lecturer used monotonous technique over and over. It challenged the researcher to find a way to make the students learn more actively in reading class. This fact interested the researcher to use another teaching technique. The researcher hoped that students' reading comprehension would increase by using the new teaching technique and the technique she chose was jigsaw.

Jigsaw is an effective learning process of the theoretical courses, in the development of critical thinking process of the students, in their ability to express themselves and in their communication skills. This technique can be used in

teaching listening, speaking, reading, or writing.³ The statement shows that jigsaw is effective to be used to teach reading.

Considering background of the problem above, the researcher will conduct a research which entitled “Increasing Students’ Reading Comprehension by Using Jigsaw Technique”. This research will be focus on fifth semester students class A, Tarbiyah and Teacher Training Faculty of State Institute for Islamic Studies, Raden Intan Lampung, academic year: 2013/2014.

B. Formulation of the Problem

Based on background of the problem above, the researcher formulated the problem as follows:

Can jigsaw technique increase students’ reading comprehension on fifth semester of English Education Program Study of Tarbiyah and Teacher Training Faculty, State Institute for Islamic Studies Raden Intan Lampung, in academic year 2013/2014?

C. Objective of the Research

Based on the formulation of the problem above, the researcher concludes the objective of the research is to find out whether jigsaw technique can increase students’ reading comprehension on fifth semester of English Education Program Study of Tarbiyah and Teacher Training Faculty, State Institute for Islamic Studies Raden Intan Lampung, in academic year 2013/2014.

D. Hypothesis

Considering the formulation of the problem, then the hypothesis of this research was: jigsaw technique can increase students’ reading comprehension on fifth semester of English Education Program Study of Tarbiyah and Teacher Training Faculty, State Institute for Islamic Studies Raden Intan Lampung, in academic year 2013/2014.

³ Kilic, Durmus. *The Effect of Jigsaw Technique on Learning in the Concept of Principles and Methods of Teaching*. Ataturk University. Turkey. 2008. P. 109

E. Target

This research has target to be achieved, it is meant to know whether this research is succeed and to decide when the research can be stopped. Thus, the target of this research is 85% of all students can get higher score or at least have 'B' criteria.

F. Method of the Research

1. Research Design

The method used in this research is Classroom Action Research (CAR). This study was taken to obtain detail information by doing some actions which deal with the problems occurred. Action research is any systematic inquiry conducted by teacher researcher to gather information with the goal improving students' outcome.⁴

Action research is usually a collaborative activity - involving input from people who are likely to be affected by the research. Action research is the application of fact finding into problem solving to improve the quality of action within it, which involve the collaboration of researcher, practitioners and laymen. Action research is a process by which change and understanding can be pursued at the one time; usually described as cyclic.⁵ The fundamental components of action research include the following: (1) developing a plan for improvement, (2) implementing the plan, (3) observing and documenting the effects of the plan, and (4) reflecting on the effects of the plan for further planning and informed action.⁶

2. Subject

Subject of the research were fifth semester students of English Education Program Study of Tarbiyah and Teacher Training Faculty, State Institute for Islamic Studies Raden Intan Lampung, in academic year 2013/2014.

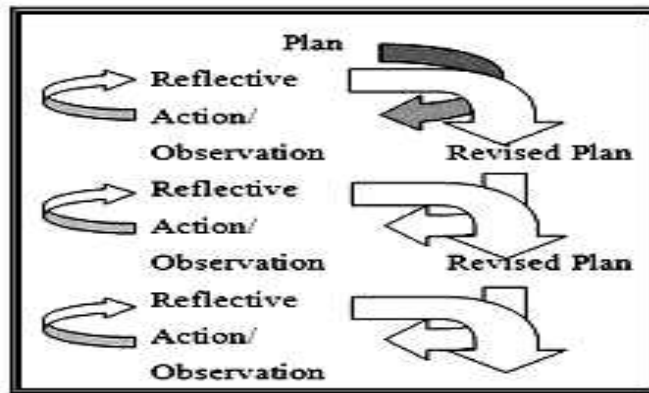
⁴ Mills. *Classroom Action Research*. Open University Press. Philadelphia. 1993. P. 24

⁵ Burns. *A Teacher's Guide to Classroom Action Research*. Open University Press. Philadelphia. 1993. P. 293

⁶ Kemmis and Mc. Taggar. *Classroom Action Research*. Cambridge University Press. 1988. P. 88

3. Research Procedure

This CAR is conducted in one cycles as follows:



Cycle in the spiral form of CAR can be stopped if substantive action have been evaluated well. Either researcher or collaborator has mastered the teaching skill that is implemented in the research. For the researcher, cycle can be stopped if the data is saturated or class is stable.⁷

On this session the researcher explained the set of planning action, involving: what, why, when, where, who, and how concerning the action that was carried out. The researcher had set the planning action two weeks before implemented the action.

G. Data Collecting Technique

In this research, some techniques were used to collect the data. Those techniques were as follows:

a. Test

Two kinds of test used to get students' reading comprehension score.

1. Pre-test was given to know early students' reading comprehension score before the research. It was presented in multiple-choice written form, it meant that the students should answer the questions given and then the researcher checked the students' answer.

⁷ Kemmis and Mc. Taggar. *Classroom Action Research*. Cambridge University Press. 1988. P. 52

2. Post-test was given to know students' final score. It was conducted at the end of each cycle. The system and degree of difficulty of post-test were the same as pre-test, because both of them were used to measure the students' reading comprehension score.

b. Observation

The researcher used observation to collect the data of students' activity in teaching learning process and the implementation of jigsaw technique. The researcher will use observation sheet to assess students' learning activity in reading class. Observation is important to assess physical and social skill, work habit, attitudes, interest, and self management.⁸ The observation sheet was filled out by collaborator and researcher during the process of teaching and learning. The researcher took a note on students' activities and the process of the teaching and learning in the classroom reflected in the pre-activity, while activity and post activity. The observation sheet was used to determine whether the students were active in class or not.

H. Data Analysis

Data analysis is the process of organizing the data in order to gain regularity of pattern and form of the phenomena observed in the research. The term interpretation defined as a procedure of giving meaning to the result of analytic process. Data analysis is an effort to choose, examine, eliminate, categorize and arrange the result of research to answer the problem. This research is aimed to know whether there is any increasing of students' reading comprehension after they are taught by using jigsaw technique.

In finding final result, the researcher compared students' reading comprehension score in each cycle, it used scoring technique that employed scoring system from the student written language observation matrix to make the assessor easier to give the score for each aspect of reading subject in very specific range and criterion. Then the result of the test will be analyzed by using descriptive statistics

⁸ Westwood, Peter. *What Teachers Need to Know About*. Acer Press. 2008. P. 74

because the data cannot be used for generalizing results beyond the context and research participants.

II. DISCUSSION

A. Concept of Reading Comprehension

Reading comprehension is a careful reading in order to understand the total meaning of the passage. At this level of comprehension the reader is able to summarize the author's ideas but has not yet made a critical evaluation of those ideas.⁹ It means that reading comprehension is activity by the readers when they read to understand and to get the total meaning of the passage.

According to Brown, reading comprehension is primarily a matter of developing appropriate, effective comprehension strategies.¹⁰ It means comprehension is ability to understand about something, in order that, the students are able to answer and understand a descriptive reading question form.

Reading is likewise a skill that teacher simply expects the learners to acquire. The acquirements or the aspects in reading comprehension test are as follows:

1. Main idea/ topic sentence
2. Expressions, idiom, phrases in context
3. Inference (implied detail)
4. Grammatical features (reference)
5. Detail (scanning for a specifically stated detail)
6. Excluding facts not written
7. Supporting idea
8. Vocabulary in context.¹¹

⁹ Mark A. Clarke, *et al. Reader's Choice*. the University of Michigan Press Ann Arbor. P.15

¹⁰ Douglas Brown. *Teaching by Principle, An Interactive Approach to Language Pedagogy*. San Fransico State. University. 1998. P.291

¹¹ Brown, H Douglass. *Language Assesment Principles and Classroom Practices*. San Fransico. California. 2003. P.206

Based on all statements above, the writer concludes that students' reading comprehension is the students' reading ability with careful reading to comprehend the total meaning of text. Reading comprehension in this study is defined as the process of getting message from the author written text. The message may be an idea, a fact, a feeling, an argument etc, with the criteria commonly used to measure reading comprehension are grammatical features, supporting detail, detail, main idea, inference, excluding fact not written and vocabularies in context.

B. Concept of Jigsaw Technique

Teaching reading is not easy, teachers are challenged to be innovative in order to make their class being active. An affective way is necessary to conduct an active reading class. One of techniques which can be used to encourage the students is jigsaw. As revealed by Aronson that 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.¹²

It is clearly that jigsaw technique can help the student to be cooperative in their team work, help them to learn a new material then maximize interaction and establishes an atmosphere of cooperation and respect for other students.

Another theory is stated by Brown that jigsaw technique is a special form of information gap in which each member of a group is given some specific information and the goal is to pool all information to achieve some objective.¹³ It means that jigsaw is an activity done by students to get some specific information from the text which they read, and then share the information to get the whole understanding.

¹² Aronson, Eliot. <http://www.teachervision.fen.com/group-work/cooperative-learning/48532.html> page=1 (23rd May 2013) pdf

¹³ Anonymous, 2010, The Effectiveness Of Jigsaw Technique In Teaching Reading Towards Students Reading Skills. A *Thesis*, Fakultas Keguruan Dan Ilmu Pendidikan. Mathla'ul Anwar University, Banten (1994) Pdf.

Jigsaw technique was developed by Elliot Aronson and his colleagues in 1978. There are two kinds of jigsaw techniques:¹⁴

1. The original jigsaw or jigsaw I

The original jigsaw is the first jigsaw that was developed by Aronson and his colleagues in 1978. In the original jigsaw assigned students to heterogeneous 4 – 5 member teams, and each member was given a unique set of information to be discussed in expert group made up of students from different teams who were given the same information. The expert returned to their teams to teach the information to their teammates. Finally all students were quizzed, and received individual grades. It means that, this approach would require accessible instructional material neatly divide into four or five appropriate topics. For example: in a unit on Chile, one student might have information on Chile economy, another on its geography, a third on its history, and so forth. To know about Chile, students must rely on their teammates. Original jigsaw also takes a little time because its reading is shorter, only a part of the total unit to be studied.

2. Jigsaw II

Jigsaw II technique was developed in 1995 by Slavin, jigsaw II is the same as Jigsaw I, except that all students receive all the information, rather than only the information relevant to their part of the topic. The expert teams function as before, but home team members are less dependent on each other because they have the information that their group mates are teaching them. Jigsaw II is an activity that allows a small group consists of four to five students to work together in order to maximize their own and each other's learning. Jigsaw II can use whenever the material to be studied is in narrative form. It is an appropriate in such subject as social studies, literature, some part of science, and related areas in which concepts, rather than skills, are the learning goals. The instructional material of jigsaw II should usually be a

¹⁴ Slavin, R. E. *Improving Intergroup Relation: Lesson Learned from Cooperative Learning Programs*. Johns Hopkins University. 1999. P.9 (accessed on 21st June 2013) pdf

chapter, story, biography or similar narrative or descriptive material.¹⁵ All students read a chapter, or story but each team member is given an individual topic on which to become an expert. Students discuss their topic in expert group and then teach them to their teammates, as in original jigsaw. However, quiz scores in jigsaw II are summed to form team scores, and teams are recognized in a class newsletter as in Students Teams Achievement Divisions (STAD).

Table 2
Comparison of jigsaw and jigsaw II techniques

Stages	Jigsaw I	Jigsaw II
1.	Formation of home groups and pre-work.	Formation of home groups and pre-work.
2.	Giving the groups of experts the units of work.	Giving the groups of experts the units of work.
3.	Expert groups research their expertise subjects before they return to their home groups.	Expert groups research their expertise subjects before they return to their home groups.
4.		A test of expertise is given to expert groups before they return to their home groups.
5.	Students in expert groups return to their home groups to share what they have learnt with their friends.	Students in expert groups return to their home groups to share what they have learnt with their friends.
6.	Individual evaluation and grading.	Individual evaluation and grading. ¹⁶

C. Procedure of Teaching Reading by Using Jigsaw

According to Eliot Aronson there were ten easy steps of jigsaw; as following:

¹⁵ Slavin, R.E. 1986. *Jigsaw II, Using Student Team Learning*. Baltimore. MD: Johns Hopkins. (accessed on 21st June 2013) pdf

¹⁶ Abdullah Sahin. *Effects of Jigsaw II Technique on Academic Achievement and Attitudes to Written Expression Course*. Academic Journals. Department of Turkish Education, 2010.

1. Divide students into 5 or 6 person jigsaw groups. The groups should be diverse 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. Divide the day's lesson into 5-6 segments. For example, if you want history students to learn about Eleanor Roosevelt, you might divide a short biography of her into stand-alone segments on: (1) Her childhood, (2) Her family life with Franklin and their children, (3) Her life after Franklin contracted polio, (4) Her work in the White House as First Lady, and (5) Her life and work after Franklin's death.
4. Assign each student to learn one segment, making sure students have direct access only to their own segment.
5. Give students time to read over their segment at least twice and become familiar with it. There is no need for them to memorize it.
6. Form temporary "expert groups" by having one student from each jigsaw group join other students assigned to the same segment. Give students in these expert groups time to discuss the main points of their segment and to rehearse the presentations they will make to their jigsaw group.
7. Bring the students back into their jigsaw groups.
8. Ask each student to present her or his 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. Eventually, it's best for the group leader to handle this task. Leaders can be trained by whispering an instruction on how to intervene, until the leader gets the hang of it.
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 games but really count.¹⁷

¹⁷ Aronson, Eliot. *Jigsaw in 10 Easy Steps*. <http://www.socialpsychology.org/> 2013

Generally, jigsaw I and jigsaw II are the same. Therefore, some aspects are different. Jigsaw II was adapted from Eliot Aronson's jigsaw I which was published in 1978. Modification steps of jigsaw II, such as:

- A. The teacher writes topic of the lesson.
- B. The teacher writes the aim of the lesson.
- C. The teacher put the students into group, and each group consists of four to five students.
- D. Each student in each group is given the same material about kinds of classification and read it all.
- E. Each student in teams gets the difference question about kinds of classification.
- F. Each member from each team who get the different problems meets with expert group to discuss their assignment.
- G. After finish discuss as the expert group back to their home group and change to deliver the answer of the question who have discussed in expert group, other members listening and giving respond.
- H. The teacher request to each expert group to present the result of their discussion.
- I. The students doing discussion.
- J. The teacher giving reinforcement in the result of discussion.
- K. The teacher giving conclusion.¹⁸

D. Benefit of Jigsaw Technique

Jigsaw process encourages listening, engagement, and empathy by giving each member of the group an essential part to play in the academic activity. Group members must work together as a team to accomplish a common goal; each person depends on all the others. No student can succeed completely unless everyone works well together as a team.

¹⁸ Rohman, Agus. <http://mahirbelajar.wordpress.com/2013/01/28/Jigsaw I and Jigsaw II, What is Different?/>

Besides the advantages that have been expressed on chapter I, there is another opinion expresses the benefits of jigsaw technique:

- a. Students have the opportunity to teach themselves, instead of having material presented to them. The technique fosters depth of understanding.
- b. Each student has practice in self-teaching, which is the most valuable of all the skills we can help them learn.
- c. Students have practice in peer teaching, which requires that they understand the material at a deeper level than students typically do when simply asked to produce on an exam.
- d. Students "talk geology" and become more fluent in use of geological terminology.
- e. Each student has a chance to contribute meaningfully to a discussion, something that is difficult to achieve in large-group discussion. Each student develops an expertise and has something important to contribute.
- f. Asking each group to discuss a follow-up question after individual presentations fosters real discussion.¹⁹

E. Data Analysis

Data in this study was obtained from the observation and test. Observation was used to know students' progress and implementation of jigsaw technique. While the test was used to obtain data on the increase of students' reading comprehension.

a. Observation

Being an innovative and successful teacher needs a hard work. Students' result can not be separated from the efforts of teacher, including the use of appropriate teaching techniques. In this research, the technique used to increase students' achievement was jigsaw.

¹⁹ Barbara Tewksbury, *The Jigsaw Technique*, <http://serc.carleton.edu/9746>. Hamilton College. 16th February 2009.

The kind of this research was classroom action research. It was conducted in two cycles. After going through two cycles, analysis of data which was obtained from observation as follows:

Based on teacher's activity

Teacher was challenged to prepare teaching material optimally. By mastering the implementation of jigsaw technique, the teaching-learning process ran effectively and efficiently.

Based on students' activity

Jigsaw was a new technique known by students. It caused a little difficulty at the first meeting of cycle 1. On the meetings they could learn more easily. Through jigsaw technique, students looked excited and enthusiastic. They participated in group discussion actively. They also practised to teach other students when they should share their part. It helped them socialize and enabled them to comprehend text easily.

b. Test

Test used in this research was written test in multiple choice form. There were three test instruments used in this research. The first test was given at the preliminary research to know students' reading comprehension. The next test was given at the end of cycle 1, and the last test was given at the end of cycle 2. The final score of each test was gained by using the formula:

$$S = \frac{r}{n}100$$

Calculation result of each test had been showed on table 5 and 6. By comparing the result at preliminary research, cycle 1, and cycle 2, could be concluded that there were the increase of students' achievement who got 'B or higher'. On the contrary, there were the decrease of students' achievement who got 'C+ or lower'.

Sudents' achievement at preliminary research was not good enaough, only 12 students or 35% of all who got higher sccore. At the end of cycle 1, there were 24 students or 71% of all who got higher score. Finally, students'

score at the end of cycle 2 showed that there were 30 students or 88% of all who got higher score. It meant that there was increase of students' reading comprehension.

III. CONCLUSION

A. Conclusion

Considering the result of reading comprehension test at the preliminary research, that was 35% students or only 12 students who got higher score. On the contrary, there were 22 students or 65% of all who got lower students. Then, at the end of cycle 1 there were 24 students or 71% of all who got higher score and 10 students or 29% of all who got lower score. Finally at the end of cycle 2 there were 30 students or 88% of all who got higher score, and 4 students or 12% of all who got lower score. Thus, the conclusion of this research was: Jigsaw technique can increase students' reading comprehension on fifth semester of English Education Program Study of Tarbiyah and Teacher Training Faculty, State Institute for Islamic Studies Raden Intan Lampung, in academic year 2013/2014.

B. Suggestion

Based on the implementation of jigsaw technique and the result gained from this classroom action research, finally the researcher proposed some suggestions as follow:

To the teacher:

1. English teacher should be innovative and apply vary techniques in teaching-learning process in order to improve students' learning motivation and the teaching- learning quality
2. Give clear and right instruction when implement a certain teaching technique. It is necessary to avoid misunderstanding and confusion in interpreting teacher's commands.

3. Jigsaw technique is recommended to conduct an active reading class. This technique can be used to attract students' interest and be a solution to increase students' reading comprehension.
4. Jigsaw technique is suitable for conducting reading class, thus this technique can be one alternative to be applied in teaching reading.

To the students:

1. Students should learn and pay attention seriously in learning process. They should encourage themselves to have learning motivation and improve their achievement.
2. Related to reading class, students should not be tired to practice a lot and participate actively to get better reading comprehension.

REFERENCES

- Anonymous, 2010, The Effectiveness Of Jigsaw Technique In Teaching Reading Towards Students Reading Skills. *A Thesis*, Fakultas Keguruan Dan Ilmu Pendidikan. Mathla'ul Anwar University, Banten (1994) Pdf.
- Aronson, Elliot. *File://Reading/Jigsaw Teaching Technique*. htm. on March 29th 2011
- Aronson, Elliot. <http://www.teachervision.fen.com/group-work/cooperative-learning/48532.html> page=1 (23rd May 2013) pdf
- Aronson, Elliot. *Jigsaw in 10 Easy Steps*. <http://www.socialpsychology.org/> 2013
- Brown, H Douglass. *"Teaching by Principles" An Interactive Approach Language Pedagogy*. San Francisco. San Francisco University Press. 2001.
- Brown, H Douglass. *Language Assesment Principles and Classroom Practices*. San Fransico. California. 2003.
- Burns. *A Teacher's Guide to Classroom Action Research*. Open University Press. Philadelphia. 1993.
- Clarke, Mark A. *et al. Reader's Choice*. the University of Michigan Press Ann Arbor.
- Dararat, PROM-D, 2012, *The Effect of Jigsaw II Technique on Reading Comprehension*. *Script*. Srinakharinwirot University. (1998) Pdf
- Farouk Abd Elsami' Ali, Mohammed. *The Effect of Usng Jigsaw Reading Technnique on the EFL Pre Service Teacher, Reading Anxiety and Comprehension*. Journal og Education College, Helwan University. Cairo, Egypt. 2001.

- Kemmis and Mc. Taggar. *Classroom Action Research*. Cambridge University Press. 1988.
- Kilic, Durmus. *The Effect of Jigsaw Technnique on Learning in the Concept of Principles and Methods of Teaching*. Ataturk University. Turkey. 2008.
- M. F. Farel. Praveen M. Jain. *English Language Teaching*. Sunrice. Jaipur. First Publish. 2008.
- Mills. *Classroom Action Research*. Open University Press. Philadelphia. 1993.
- Murcia, Marriane Celce. *Teaching English as a Second or Foreign Language*. 2001.
- Muslich, Masnur. *Authentic Assessment: Penilaian Berbasis Kelas dan Kompetensi*. Refika Aditama. Bandung. 2010.
- Rohman, Agus. [http://mahirbelajar.wordpress.com/2013/01/28/Jigsaw I and Jigsaw II, What is Different?/](http://mahirbelajar.wordpress.com/2013/01/28/Jigsaw_I_and_Jigsaw_II,_What_is_Different?/) 28 Januari 2013
- Sahin, Abdullah. *Effects of Jigsaw II Technique on Academic Achievement and Attitudes to Written Expression Course*. Academic Journals. Department of Turkish Education. 2010
- Slavin, R. E. *Improving Intergroup Relation: Lesson Learned from Cooperative Learning Programs*. Johns Hopkins University. 1999. pdf
- Slavin, R.E. 1986. *Jigsaw II, Using Student Team Learning*. Baltimore. MD: Johns Hopkins. (accessed on 21st June 2013) pdf
- Soedarso. *Speed Reading : Sistem Membaca Cepat dan Efektif*: PT. Gramedia. Jakarta. 2001.
- Tewksbury, Barbara. *The Jigsaw Technique*, <http://serc.carleton.edu/9746>. Hamilton College. 16th February 2009
- Wainwright, Gordon. *Speed Reading Better Recalling*. PT. Gramedia Pustaka Utama. Jakarta. 2006.
- Westwood, Peter. *What Teachers Need to Know About*. Acer Press. 2008.