THE EFFECT OF JIGSAW TECHNIQUES ON THE READING COMPREHENSION ABILITY OF THE SECOND YEAR STUDENTS OF SMAN 2 PEKANBARU

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Abstract : *This study aims to find out the effectiveness of Jigsaw Techniques on the reading comprehension ability of the second year students of SMAN 2 Pekanbaru, the technique that being used was Jigsaw IV. The researcher uses pre-experimental research design of one-group-pre-test-post-test. The researcher uses Cluster Random Sampling technique to determine the sample of the research. The population of this study is the second year students consisted of 5 science classes with total 172 students, from the population it was chosen that the sample is XI Science 1 class with 34 students. The research instrument is a reading test in the form of analytical exposition text using multiple-choice type of test and each question consists in four options (A, B, C, and D). The test consists of 5 analytical exposition passages based on the reading comprehension components with the total of 25 questions for both of pre-test and post-test. Before the test is administrated to the research sample, the researcher conducted a try-out of the test to non-experimental group to obtain the reliability and validity of the test using Heaton's index of difficulty/Facility Value (FV) formula. The researcher uses application program such as Microsoft Excel and IBM-SPSS Statistics Version 23 to analyze the data. Based on the results, the T-Observation or T-Test is higher than T-Table ($t_o > t_t$, $t_o = 12.754$, $t_t = 2.03452$ (2.035)). The probability is in sig. 2 tailed with $\alpha = 5\%$ (0.05) that it is displayed in T-Test table of sig.2 tailed = 0.000 with df = n-1 = 33. Then, t-observation result also shows that the student's mean score of post-test (67.0588) is higher than the pre-test (53.0588). Furthermore,* the *Paired Sample Correlation shows 0.794 which is interpreted as strong. It can be concludes that there are good effects of Jigsaw IV technique and solved the second year students' problem on reading comprehension especially towards students' reading comprehension of SMAN 2 Pekanbaru. It is suggested that Jigsaw IV technique can be applied not only for junior high school level, undergraduate students level, EFL students level, and students in science class but also can be applied for second year of senior high school level.*

Keywords: *Effect, Jigsaw IV Technique, Reading Comprehension, Ability, Senior High School, Second Year Students.*

PENGARUH TEKNIK-TEKNIK JIGSAW DALAM KEMAMPUAN MEMBACA SISWA TAHUN KEDUA SMAN 2 PEKANBARU

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Abstrak : Penilitian ini bertujuan untuk mengetahui pengaruh teknik Jigsaw terhadap kemampuan membaca siswa tahun kedua SMAN 2 Pekanbaru, teknik yang digunakan adalah Jigsaw IV. Peneliti menggunakan rancangan penelitian *pre-eksperimental* satu kelompok *pre-test-post-test*. Peneliti menggunakan teknik *Cluster Random Sampling* untuk menentukan sampel penelitian. Populasi dari penelitian ini adalah siswa tahun kedua terbagi dari 5 kelas eksakta dengan jumlah siswa sebanyak 172 orang, dari populasi yang terpilih sebagai sampel yaitu kelas XI eksakta 1 dengan jumlah siswa sebanyak 34 orang. Instrumen penelitian ini adalah tes membaca dalam bentuk teks analitis eksposisi dengan bentuk test pilihan ganda dan setiap pertanyaan terdapat 4 pilihan ganda (A, B, C, dan D), terdiri dari 5 teks analitis eksposisi yang berdasarkan atas 5 komponen pemahaman membaca dengan berjumlah sebanyak 25 pertanyaan masing-masing pada *pre-test* dan *post-test*. Sebelum tes diberikan kepada sampel penelitian, peneliti melakukan sebuah uji coba kepada kelompok non-eksperimental untuk memperoleh reliabilitas dan validasi dari tes tersebut dengan menggunakan acuan rumus index tingkat kesulitan soal *Heaton*. Peneliti menggunakan program aplikasi seperti *Microsoft Excel* dan *IBM-SPSS* Statistik Model ke-23 untuk menganalisa data. Berdasarkan dari hasil penelitian, nilai *t-test* lebih tinggi daripada nilai *t-table* ($t_o > t_t$, $t_o = 12.754$, $t_t = 2.03452$ (2.035)), dalam probabilitas signifikan uji 2 arah dengan Alpha = 5% (0.05) sebagaimana tertera pada hasil table *T-Test* bersignifikan uji 2 arah = 0.000 dengan derajat kebebasan = $n - 1 = 33$. Hasil dari T-Observasi menunjukkan nilai rata-rata siswa pada pasca diberi perlakuan lebih besar (67.0588) daripada rata-rata dari sebelum diberi perlakuan (53.0588). Selanjutnya, data *Paired Sample Correlation* bernilai 0.794 yang dapat diinterpretasikan sebagai berkorelasi *kuat*. Hal ini dapat disimpulkan bahwa ada pangaruh baik dari teknik Jigsaw IV dan dapat menanggulangi permasalahan siswa dalam pemahaman membaca terutama terhadap pemahaman membaca siswa di SMAN 2 Pekanbaru. Teknik Jigsaw IV ini disarankan dapat di gunakan tidak hanya untuk level SMP, level Mahasiswa, level Siswa *EFL*, dan Siswa kelas sains namun juga dapat di gunakan untuk level SMA tahun kedua.

Kata Kunci : Efek, teknik Jigsaw IV, Pemahaman membaca, Kemampuan, Siswa SMA/MA, tahun kedua.

INTRODUCTION

English has become an international language and a compulsory subject for academic disciplines such as humanities, sciences, arts, social sciences, and technology. In Indonesia, English becomes a compulsory subject for the students in every level of education starting from kindergarten to university level. In order to learn English, they need to be able to learn four language skills such as reading, writing, listening and speaking. In other words, reading has the crucial role in learning English and the learner are expected to be able to read English textbooks. However, they are not only expected being able to read the text or book and yet they are able to comprehend of what they read. According to Pang *et. al*, (2003) state reading consists of two related processes: word recognition and comprehension. Word comprehension refers to the process of perceiving how written symbols correspond to spoken language; and comprehension refers to the process of making sense of words, sentences, and connected texts.

On the process of reading comprehension, mostly students found that difficulty to improve theirs reading comprehension ability. In brief, it can be concluded that the students as the "poor comprehenders". In addition, Meneghetti, *et.al* (2006) on theirs journal in Learning and Individual Differences state that poor comprehenders are those individuals who have an average IQ but are specifically impaired in understanding the meaning of a text. according to Romeo (2002) stated in a book by Block, *et.al* entitled *"Improving comprehension instruction"*, he states the comprehension difficulty faced by children affect on variables, such as social class, educational background of the parents, family income and the number of books in the home were consistently related to school reading achievement.

In order to find out the students' problem in reading comprehension, the researcher did an interview on 21st July 2016 at 10:45 p.m to one of a teacher who teaches XI Science at SMAN 2 Pekanbaru, named Mrs. Erna Juita. Although the students have learned English, they still have problems on reading comprehension, such as (1) They have difficulties on comprehending English text, (2) They lack of vocabulary, (3) They find difficult on finding the implicit meaning of text that they read, (4) Then, they have low of motivation on comprehending English texts and books. That problems could lead them become a "poor comprehender" without theirs realizes the effect due to theirs weakness and poor ability on reading comprehension.

In contextual to become good comprehenders, efficient and effective reader, and by seeing the importance of reading comprehension, it would be better if every students are able to read English textbooks by not only knowing the information from the text but also they are able to comprehend the text. In fact, based on the researcher observation in the field showed that even though many students have learned English where they are in the senior high school, they still have difficulty on reading comprehension especially in English yet they have learnt to read English textbooks since elementary school. Indeed, it could indicate them to be categorized as the "poor comprehenders" due to excuses from any improvement actions on theirs reading comprehension ability. Additionally, according Meneghetti, *et.al* (2006) state the poor comprehenders are at a particular disadvantage when they are required to execute a process that requires integrating newly encountered information with information encountered earlier in the text or retrieved from long-term memory. Furthermore, there is between poor comprehenders compared to good comprehenders such as in their ability to construct complete representations of the text, being able to integrate text

information at a local level but are unable to produce a coherent integrated model of the text as a whole (Cain, Oakhill, Barnes, & Bryant, 2001).

Regarding the explanation above, this research is intended to discuss the effectiveness of Jigsaw techniques especially on using Jigsaw IV technique towards the reading comprehension ability of the second year students of SMAN 2 Pekanbaru.

In English, learners are not only able to speak, write, and listen in English but also they have to be able to read and comprehend the texts. Although, some people may didn't concerned theirs reading comprehension ability in contrast based on the researcher observation generally most of the learners more concern in speaking, listening and writing. However, reading is the crucial element that affect theirs academic achievement and even theirs academic achievement even when they are trying to apply a job that not only requires to be able in speaking, writing, and listening in English but also they have to require to be able in reading comprehension. According to Gary Wolley (2011) in his book entitled "*Reading Comprehension: Assisting Children with Learning Difficulties*", he states reading comprehension is the process of making meaning from text which its goal to gain an overall understanding of what is described in the text rather than to obtain meaning from isolated words or sentences. According to King and Stanley (1989) to be an efficient reader, there are five components of reading comprehension such as finding main ideas, factual information, the meaning of vocabulary in context, references and inferences. In this global era, there is no exception for not learning English especially thus for students in every academic level yet it also impact in their future life. One of country which it does not have exception is Indonesia. Even though that country only accepted the English as foreign language but the students in that country have to be able to able to read. It is more better if the students good in reading comprehension and have good comprehension ability.

There are many techniques that the teacher could apply in order to be better in teaching-learning process especially in teaching reading comprehension. In this research, the researcher used Jigsaw techniques which the technique categorized into four types such as Jigsaw I, Jigsaw II, Jigsaw III, and Jigsaw IV. According to Kagan (1994), he found that Jigsaw is an effective strategy to use when you want to increase student's mastery or a topic at a hand, boost their concept development, enhances targeted discussion among students, and foster group project participation and learning. In addition, Heather (2008) says jigsaw is a cooperative learning technique that was created with the goals of reducing conflict and enhancing positive educational outcomes. Moreover, in order to limit the research objective, the researcher used Jigsaw IV to teach the learners in reading comprehension class. There are some reasons of why the researcher is interested to use Jigsaw IV technique rather than the other type of Jigsaw. Thus, reasons are Jigsaw IV technique is more organize and concerns on students' accuracy and understanding the topic of a lesson, each of students has theirs' role in their respective home group and supports their respective home team group, the roles are on a rotating basis (however, the rotating basis is exceptional for expert teams but not for a leader, a recorder, a material and a speaker) that assigned and changed by the teacher, and students could learn to do a team-work without seeing status, tradition, public-entitled, social-rank and favoritism.

There are many various researches that conducted by using Jigsaw techniques in teaching-learning activity. The researches are started from in research design such as Classroom Action Research (CAR), quasi-experiment, and pre-experiment. The researchers found various findings on theirs research are whether good or bad. In

addition, the research that their conducted are benefit both in teaching-learning area, the subject of the research and contained important information for the other researchers. Maden (2010) have asserted that the use of Jigsaw IV technique had good effect in students' learning activities because it enhanced the students' self confidence, improved theirs cooperation and interaction activity, provided active participation, arose the aim of reaching knowledge and learning and then students' cooperation became enjoyable. Febry (2013) found that there is improvement on students' academic achievement by using Jigsaw IV technique. Furthermore, Zakiyah (2010) and Cempaka (2014) found that the use of Jigsaw IV technique has increased the students' reading comprehension achievement and the students are more active in teaching-learning on reading comprehension activity. Suwandi (2012) also found that there is the effectiveness of Jigsaw in improving the students' ability on comprehending reading texts and there was strength of Jigsaw, which is the students' were active and cooperate in learning English. Then, Rahajeng (2013) found that jigsaw technique was effective in enhancing the students' vocabulary, motivation, involvement, interaction, cooperation, reducing the gap between the high-motivated students and the low-motivated students, and easy on asking the students to bring dictionary. In contrast, Juhaendi (2013) found that Jigsaw technique failed to improve the students' reading comprehension, it is due to the causes of the learning condition and the class management by the teacher that didn't pay attention in learning condition, class control and class management when being used Jigsaw technique in class. Jigsaw IV technique was developed by Holliday in 2002, the implementation of Jigsaw IV technique consists of nine procedures (Holliday, 2002):

In the first procedure, teacher introduces the lesson to whole group literature or posing a question or problem or showing a film or film clip, and other methodologies.

In the second procedure, the teacher establishes the expert questions or sheets to students in their respective home groups.

In the third procedure, the teacher asks the students to work collaboratively in their respective expert teams.

In the fourth procedure, performs expert quizzes to check for accuracy and understanding.

In the fifth procedure, the expert team members back in to their respective home groups.

In the sixth procedure, performs home group quizzes to check for accuracy and understanding.

In the seventh procedure, performs a review of the material process

In the eighth procedure, performs individual assessment.

In the eighth procedure, the teacher re-teaches the concept or material that based on the individual assessment.

In this study, it was hypothesized that Jigsaw techniques had effects on students' reading comprehension ability. In brief, the study aimed to find out the effectiveness of Jigsaw techniques, especially by using Jigsaw IV technique on reading comprehension ability of the second year students of senior high school in learning English reading comprehension.

In learning to read English textbooks, there are many texts which learners can read which is not only theirs school textbooks but also other texts such as procedure, anecdote, description, exposition, problem-solution, recount, report, and review (Paltridge, 1996). Furthermore, the texts could be categorized into two texts; functional texts such as advertisements, posters, pamphlets, greeting cards, announcements, short messages, notices, prohibitions, signs, identity cards, shopping list, food labels, brochures, booklets, leaflets, flyers, manual guides, banners, posters, poet cards, letters, cautions, greeting cards and invitation cards. Then, monologue texts such as analytical expositions, procedures, narratives, reports, recounts, descriptive, spoofs, anecdotes, hortatory exposition, explanations, news items, discussions, and reviews. However, in this research, the researcher limited the reading text for the learners to learn in theirs class based on the school curriculum of their school. The researcher used monologue text such as analytical expositions. The analytical expositions is a text that presents one side of an issue (Anderson & Anderson, 1997) and It contains of some arguments that convince the reader to deal with something happen around them (Gerrot and Wignell, 1994).

The researcher only used analytical exposition texts is due to based on the Educational Curriculum 2013 by Ministry of Education and Culture (Kemendikbud). In brief, the researcher limits the use of reading texts and not concerned on the reading text genres as the interest research subject yet the researcher used analytical exposition just for the instrument of the research for the research subject in order to find out the effectiveness of Jigsaw techniques, especially Jigsaw IV Technique on the students' reading comprehension ability of the second year of senior high school.

RESEARCH METHODOLOGY

In this research, the researcher used pre-experimental research design by administrated one-group-pre-test-post-test which is in a single experimental group and it being controlled in a special treatment.

The research took place at SMAN 2 Pekanbaru which is located on Jalan Nusa Indah, Pekanbaru, Riau Province of Indonesia State. The research conducted from January 1st in 2015 until September 26th in 2017. In addition, the researcher conducted the pre-test was on July 11th, the treatment conducted on every Tuesday started on July 18th until September 19th, and the post-test conducted on September 26th, both of pre-test, treatments and post-test conducted in years 2017. The total population of this research was 172 second year students consisted of 5 science classes, then the chosen class which as the sample was XI Science 1 with 34 students. The subject was taught by using Jigsaw IV technique and at the end of the study, the reading tests was used in order to obtain data collection instrument to find out the effectiveness of Jigsaw IV technique on the experimental group.

The quantitative data was used in order to collect the data after implemented the Jigsaw IV technique. The instrument of research was reading tests in form of analytical exposition text and it designed in multiple-choice test. The texts consisted of five analytical exposition passages that based on the reading comprehension components where each passage contained five questions with total 25 questions then each question consisted in five options (A, B, C, and D) for both pre-test and post-test. Each correct answer scored four and false answer had no score. The maximum total score was 100. The test time allocation was 50 minutes.

The data collection was analyzed and statistically computed by using Microsoft Excel and IBM SPSS Version 23 application program. In Microsoft Excel, the contents were being analyzed were the index of difficulty or facility value of the try-out items test and the validity of the try-out reading test, the result of students' scores for a whole reading test contents and students' result on each aspect of reading comprehension in pre-test and post-test, and the students' ability level both in pre-test and post-test. Furthermore, in analyzing and reliability of the reading test, standard deviation, t-observation, degree of freedom and standard error of mean had been obtained and statistically computed by using statistic application program names IBM (International Business Machines) SPSS (Statistical Product and Service Solutions) Statistics Version 23. The reason the researcher use IBM SPSS because it is easy-to-use, flexible and scalable platform makes IBM SPSS accessible to users with all skill levels and outfits projects of all sizes and complexity to help you and your organization to find new opportunities, improve efficiency and minimize risk (IBM SPSS software website, 2018). In SPSS, a paired samples t- test was used to determine the differences among pre-test and post-test and an independent samples t- test was used to determine the differences between the means of the experimental and control group's academic achievement (Özdemir, 2016). That the obtained data is described in a systematic and clear way, then these descriptions are explained and interpreted, cause-effect relationships are analyzed and a conclusion is drawn (Yildirim and Şimşek, 2008).

FINDINGS AND DISCUSSION

The tests results are presented purposely to present the students' reading comprehension ability towards each aspect of reading according to King and Stanley (1989). The specification of the reading tests were finding the main idea of the text, finding the factual information, finding the meaning of vocabulary in context, identifying references and identifying inferences. The data results were categorized into two categories, the first categorize in a table are students' reading ability level of reading comprehension and the second is students' ability on each aspect of reading comprehension that both of categorizes are in pre-test and post-test. The result can be seen on the table as follows:

Table Students' Ability Level of Reading Comprehension in Pre-Test

Test Score Values	Ability Level	Pre-Test	
		Frequency	Percentages
81 – 100	Excellent	0	0.00%
61 – 80	Good	5	14.71%
41 – 60	Mediocre	25	73.53%
21 – 40	Poor	4	11.76%
0 – 20	Very Poor	0	0.00%

On the table of students' reading comprehension ability level in pre-test, the data shows that there is no students were able to reach "excellent" and "very poor" level. Furthermore, there were 5 students who could reach "good" level which percentages 14.71%. Then, there were 25 students who could reach "mediocre" level which percentages 73.53% and 4 students who reached "poor" level which percentages 1.76%.

Table Students' Ability on Each Aspect of Reading Comprehension in Pre-Test

No.	Aspects of Reading Comprehension	Average Percentages of Texts (%)
1.	Finding Main Ideas	76.47%
2.	Finding Factual Information	62.35%
3.	Finding the Meaning of Vocabulary in Context	22.94%
4.	Identifying References	67.06%
5.	Identifying Inferences	34.12%
	Average	52.59%

On the table of students' ability on each aspect of reading comprehension in pre-test, the data shows the lowest score in the five aspect of reading comprehension are "finding the meaning of vocabulary in context" and "identifying inferences" that both of the aspects are less than 50.00%. On the contrary, there are three aspects which more than 50.00% such as the first highest score is "finding main ideas" with percentages 76.47%, the second is "identifying references" with percentages 67.06%, and the third is "finding factual information" with percentages 62.35%. The total average score of all aspects of reading comprehension is 52.59%.

Table Students' Ability Level of Reading Comprehension in Post-Test

Test Score Values	Ability Level	Post-Test	
		Frequency	Percentages
81 – 100	Excellent	2	5.88%
61 – 80	Good	18	52.94%
41 – 60	Mediocre	14	41.18%
21 – 40	Poor	40	0.00%
0 – 20	Very Poor	0	0.00%

Otherwise, on the table of students' reading comprehension ability level in post-test data shows that there is no students were able to reach "very poor" and "poor" level. Then, there were 2 students who could reach "excellent" level which percentages 5.88%. There were 14 students who could reach "mediocre" level which percentages 41.18% and 18 students who reached "good" level which percentages 41.18%.

Table Students' Ability on Each Aspect of Reading Comprehension in Post-Test

No.	Aspects of Reading Comprehension	Average Percentages of Texts (%)
1.	Finding Main Ideas	87.06%
2.	Finding Factual Information	79.41%
3.	Finding the Meaning of Vocabulary in Context	40.00%
4.	Identifying References	80.59%
5.	Identifying Inferences	47.65%
	Average	66.94%

In contrast, on the table of students' ability on each aspect of reading comprehension in post-test, the data shows the lowest score in the five aspect of reading comprehension still are "finding the meaning of vocabulary in context" and "identifying inferences", as well as both of the aspects still are less than 50.00%. Similarly, on the pre-test table there are three aspects which more than 50.00%. However, the difference is the percentage in post-test is higher than in pre-test. The aspects are the first highest score is "finding main ideas" with percentages 87.06%, the second is "identifying references" with percentages 80.59%, and the third is "finding factual information" with percentages 79.41%. The total average score of all aspects of reading comprehension is 66.94%.

Data Analysis

In this study, the t-test formula was used to compare between pre-test and post-test result. It is not only for comparison but it also used to determine the hypothesis whether the alternative is accepted and treatment result based on the reading test could give effect or not on the students' reading comprehension ability.

T-Test Result

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-Test	67.0588	34	9.18807	1.57574
	Pre-Test	53.0588	34	10.43578	1.78972

Based on the T-Table above, the mean score of pre-test is 53.0588 and in post-test is 67.0588. The gap of mean score shows the effect of Jigsaw IV technique on students' reading comprehension. Standard deviation is a value spread in the sample,

while the standard error of mean is the standard deviation of the sample mean. In can be conclude that there is the difference between standard deviation of pre-test and post-test are less than the mean of the test so that the data sample was representative. On the other words, the results of standard error mean in pre-test and post-test are less than the results of standard deviation. Thus, it described its estimated accuracy of the population mean.

Beside the enhancement score of pre-test and pot-test, in order to find out the alternative hypothesis could be accepted is shown on the results of T-Table. Before, determine the hypothesis the T-Table is 2.03452 which based on the T-Table standard international of T-Table value. In this research was used the significance of two-tailed (Sig. (2-tailed) which the significance value of $\alpha = 5\% = 0.05$, df = 33 (from N-1=34-1).

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 Post-Test & Pre-Test	34	.794	.000

In paired sample correlation table explained the correlation between pre-test and post-test. Based on the table, the correlation coefficient was 0.794 which the number of students is 34 students.

To find out the effectiveness of Jigsaw IV technique on students' reading comprehension, the researcher used the classification of correlation coefficient which adopted from Sudijono (2015), it shown on the following table:

Table Classification of Correlation Coefficient

No.	The Value of "r" Product Moment (r_{XY})	Interpretation
1.	0.00 – 0.20	There is such a correlation between variable X and Y. However, the correlation interpretation is *very weak*, and therefore that correlation can be ignored.
2.	0.20 – 0.40	The correlation between variable X and Y is *weak*.
3.	0.40 – 0.70	The correlation between variable X and Y is *mediocre*.
4.	0.70 – 0.90	The correlation between variable X and Y is *strong*.
5.	0.90 – 1.00	The correlation between variable X and Y is *very strong*.

(Sudijono, 2015)

Based on the classification of correlation coefficient table, the correlation score of 0.794 interpreted the correlation between variable X and Y is *strong*. The probability of (Sig. (2-tailed)) is 0.000 which is smaller than which the significance value of $\alpha = 5\% = 0.05$, it indicates there is a strong correlation of Jigsaw IV technique toward the students' reading comprehension ability.

Paired Samples Test

		Paired Differences							Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	
Pair 1	Post-Test Pre-Test	14.00000	6.40076	1.09772	11.76667	16.23333	12.754	33	.000

Based on the table, it shows the gap score results of the T-Test (T_{ob}) which its mean score is 14.000, while T-Table is 2.035. In brief, the T-Test (T_{ob}) is higher than the T-Table, it can be concluded that there is a difference score between pre-test and post-test. So that, the alternative hypothesis is accepted and there is effectiveness of Jigsaw IV technique on students' reading comprehension ability before and after conducted the treatment on the second year students of SMAN 2 Pekanbaru. Moreover, the null hypothesis was rejected.

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the research findings, it can be concluded that the use of Jigsaw Iv technique has effect on students' reading comprehension ability, especially for the senior high school of the second year students of SMAN 2 Pekanbaru. The use of Jigsaw IV technique also help to solve students problems on reading comprehension such as let the students to be more familiar in using English for theirs reading activity, could improve their reading ability, decrease their difficulties on comprehending English text, help them on increasing their vocabulary, decrease their difficulty on finding the implicit meaning of text, and maintain to give them high-motivation on comprehending English texts and books. It could be seen from the T-Test result which showed that the students' mean score in post-test (67.06) was higher than in pre-test (53.06) with the gap score was 14.00. Based on the students' ability level data showed that students' reading comprehension ability in post-test is increase and improve after the implemented a special treatment (Jigsaw IV technique). Therefore, the alternative hypothesis was accepted, it interpreted that there is the effectiveness of Jigsaw IV technique on students' reading comprehension ability.

Recommendation

The results were revealed that the Jigsaw IV technique has effectiveness on teaching reading comprehension. Regarding to the process on using Jigsaw IV technique and based on the conclusion of the research findings, the researcher suggests:
1. The teacher needs to apply an appropriate technique in order to find out the effective way in improvement of reading comprehension and make the lesson

is more enjoyable, interesting and attractive for the students' brain stimulations in learning activity.

2. The teacher should give more times for the students to practice theirs reading comprehension ability. By giving the additional times for them.

3. Based on the data result of students' lowest score on reading comprehension aspects are *finding the meaning of vocabulary in context* and *identifying inferences*, the teacher should more focus on that aspects in order to make an efficient and effective way to them to be more good on comprehending English texts and textbooks.

4. Before doing the treatment, the students should pay theirs attention when the researcher explains the procedures of Jigsaw IV technique to them in the class.

5. The students are more confident on asking help from the teacher, giving their opinions, arguments, reactions and ideas in the class to their friends, which it can be practiced both by the students and their friends.

6. The students should more learn on building their team-work ethic in the class and responsible of theirs role in their respective groups and teams.

REFERENCES

Anderson, M., & Anderson, K. (1997). *Text Types in English 2*. Macmillan: Macmillan Education Australia PTY LD.

Cain, K., Oakhill, J. V., Barnes, M. A., & Bryant, P. E. (2001). Comprehension skill, inference making ability and their relation to knowledge. *Memory & Cognition, 29*, 850−859. Retrieved from https://doi.org/10.3758/BF03196414

Cempaka, A., Suparmin, & Mufaridah, F. (2014). Improving the Eighth C Class Students' Reading Comprehension Achievement by Using Jigsaw IV Technique at SMPN 2 Umbulsari Jember in the 2013/2014 Academic Year. *Journal Digilib, Universitas Muhammadiyah Jember*. Retrieved from http://digilib.unmuhjember.ac.id/files/disk1/52/umj-1x-cempakaari-2560-1-journal.pdf

Febry, A. I. H., Istianah, W., & Sukmaantara, I. (2013). Improving the Eight Grade Students' Reading Comprehension Achievement by Using Jigsaw IV Technique at SMPN 1 Rambipuji Jember. *Pancaran Pendidikan, 2*(4), 9-19, November 2013. Retrieved from https://jurnal.unej.ac.id/index.php/pancaran/article/download/780/596/

Gerot, L., & Wignell, P. (1994). *Making Sense of Functional Grammar*. Sydney, AU: Gerd Stabler.

Heather, C. (2008). *Cooperative Learning: 3.2 Jigsaw–Educator's Guide: North Carolina Digital*. K-12 Teaching and Learning from the UNC School of Education. Colorado, US: University of Northern Colorado.

Holliday, D. C. (2002). Jigsaw IV: Using Student or Teacher Concerns to Improve Jigsaw III. U.S. Department of Education, Office of Educational Research and Improvement. *E-Journal of Educational Resources Information Center (ERIC)*. Retrieved from http://files.eric.ed.gov/fulltext/ED465687.pdf

IBM SPSS. (2018). IBM SPSS (Version 23) [IBM SPSS Home Products Software]. Retrieved from http://www-01.ibm.com/support/docview.wss?uid=swg24038592.

Juhaendi, D. A, Sudarsono, & Nurlaelawati, I. (2013). *The Use of Jigsaw Technique in Improving Students Reading Comprehension* (S1 Thesis, Repository UPI Central Library, Universitas Pendidikan Indonesia, Bandung, West Java, Indonesia). Retrieved from http://repository.upi.edu/2442/

Kagan, S. (1994). *Cooperative Learning*. San Clemente, CA, US: Kagan Publishing.

King, C., & Stanley, N. (1989). *Building Skill for TOEFL*. Wadsworth Pub Co.

Maden, S. (2010). The Effect of Jigsaw IV Technique on the Achievement of Course Language Teaching Methods and Techniques. *Academic Journals, Educational Research and Review, 5*(12), 770-776, December 2010. Retrieved from http://www.academicjournals.org/article/article1379655884_Maden.pdf

Meneghetti, C., Carretti, B., & De Beni, R. (2006). Components of Reading Comprehension and Scholastic Achievement. *Journal of Psychology and Education, Elsevier Educational Research Programme, Learning and Individual Differences, 16*, 291-301. doi:10.1016/j.lindif.2006.11.001

Özdemir, E. & Arslan, A. (2016). The Effect of Self-regulated Jigsaw IV on University Students' Academic Achievements and Attitudes towards English Course. *Journal of Education and Training Studies, 4*(5), May 2016. Zonguldak, TR: Bulent Ecevit University. Retrieved from http://redfame.com/journal/index.php/jets/article/viewFile/1453/1521

Paltridge, B. (1996). Genre, text type, and the language learning classroom. *ELT Journal, 50(3)*, 237-243. Oxford, UK: Oxford University Press.
Pang, E. S., Angaluki, M., Elisabeth, B., & Michael, L.K. (2003). *Teaching Reading, Educational Practices Series 12*. AU: The International Academy of Education.

Rahajeng, D. T., Sugirin, & Triastuti, A. (2013). *Using Jigsaw Technique for Improving Reading Skill of the Tenth Grade Students of SMAN 1 Parakan* (S1 Thesis, English Language Education Study Program, Faculty of Language and Arts, Yogyakarta State University, Yogyakarta, Indonesia). Retrieved from http://eprints.uny.ac.id/22548/1/Dian%20Titi%20Rahajeng%2006202244039.pdf

Romeo, L. (2002). At-risk students: Learning to break through comprehension barriers. In *Block C. C., Gambrell, L. B., & Pressley, M. (Eds.), Improving comprehension instruction* (pp. 385–389). San Francisco: Jossey-Bass.

Sheridan, E. M. (1981). Theories of Reading and Implication for Teachers. *Reading Horizons, A Journal of Literacy ad Language Arts, 22*(1), Article 11. Retrieved from http://scholarworks.wmich.edu/reading_horizons/vol22/iss1/11

Spencer, M., Quinn, J. M., & Wagner, R. K. (2014). Specific Reading Comprehension Disability: Major Problem, Myth, or Misnomer?. *Learning Disabilities Research & Practice : A Publication of the Division for Learning Disabilities, Council for Exceptional Children, 29*(1), 3–9. Retrieved from http://doi.org/10.1111/ldrp.12024

Sudijono, A. (Ed.). (June, 2015). *Pengantar Statistik Pendidikan* (26th ed.). Jakarta, ID: PT. Raja Grafindo Persada publisher.

Suwandi, Nurkamto, J., & Maryadi. (2012). Improving Students' Reading Comprehension through Jigsaw Technique in SMP Negeri 2 Ngrampal, Sragen in the Academic Year of 2011/2012. *E-Journal of UMS ETD-db*. Department of Language Study, Post Graduate Program, Universitas Muhammadiyah Surakarta. Retrieved from http://eprints.ums.ac.id/22179/21/02._NASKAH_PUBLIKASI.pdf and http://eprints.ums.ac.id/22179/1/03._Cover.pdf

Woolley, G. (2011). *Reading Comprehension: Assisting Children with Learning Difficulties*. New York, USA: Springer Science-Business Media B.V., Springer Publisher.

Yıldırım, A., & Şimşek, H. (2008). Sosyal bilimlerde nitel araştırma yöntemleri [Qualitative research methods in social sciences]. Ankara: Seçkin Yayınları. In Özdemir, E. & Arslan, A. (2016). *The Effect of Self-regulated Jigsaw IV on University Students' Academic Achievements and Attitudes towards English Course. Journal of Education and Training Studies, 4*(5), May 2016. Zonguldak, Turkey: Bulent Ecevit University.

Zakiyah, U. (2010). Increasing the Tenth Year Students' Reading Comprehension Achievement by Using Jigsaw IV Technique at MA Darussalam Jember in the 2009/2010 Academic Year. *Journal of Undergraduate Theses Collections of UT-Faculty of Teacher Training and Education*, December 16, 2013. English Education Program, Language and Arts Education Department, Faculty of Teacher Training and Education, Jember University. Retrieved from http://repository.unej.ac.id/bitstream/handle/123456789/8974/UMMI%20ZAKI YAH.pdf?sequence=1