

## THE EFFECT OF JIGSAW STRATEGY ON STUDENTS' READING COMPREHENSION AT SMK SWASTA YAPIM MEDAN

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### ABSTRACT

*The aim of the research was to find out the effect of applying the Jigsaw strategy on the students' reading comprehension at X grade at SMK Swasta Yapim Medan. The researchers applied quantitative method. According to the research findings, it is concluded that Jigsaw Strategy gave more effective application on teaching the reading comprehension at Tenth Grade students at SMK Swasta Yapim Medan than applied conventional strategy. The mean of applying Jigsaw strategy is 19.83. Standard of Deviation is 8.80, and Standard of Error mean is 1.63 and number of students is 30. The mean by applying conventional strategy is 11.8 and standard of deviation is 10.18, and Standard of Error mean is 1.89 and number of students is 30. Standard of Error from different mean is 2.50. The value of  $t_o$  is 3.33. From this research, it was known that  $df$  60 at the significance degree 5% or  $t_{table}$  5% of  $df$  60 was 2.00. Then from the data it was known that  $df$  60 at the significance degree 1% or  $t_{table}$  of  $df$  1% was 2.65.*

**Keywords:** The Effect, Jigsaw Strategy, Reading Comprehension, Narrative Texts

### INTRODUCTION

According to Brown (2001:264) reading is the process that as correlation with the abilities of listening, writing, and speaking. Reading comprehension is an understanding process from the text in the printed form to be understood as ideas that used by the author to be information that can be used. Based on the opinion of the researchers, it can be said that there is an importance of the reading comprehension as it can give more information for the readers from the printed form to be information that useful for the readers. In the reading comprehension activities, the readers can use brain and eyes in understanding the content of the text. Then the readers can write down what they have had read from the text. In the process of the reading comprehension, the readers must activate their minds to understand the content of the text.

Reading comprehension is an effective way in extending languages. There are many function from the reading comprehension especially when it is taught in the classroom where the activity of language learning becomes the central purpose (Nuttall, 1983). In other words, based on Mc. Laughlin as quoted by Celca-Murca (2001) stated that reading comprehension is the very complex skills that must be mastered by the students at the school, especially in the learning process that conducted in the classroom. The students must do engagement in interactive process when doing the reading comprehension.

Originally, Elliot Aronson applied Jigsaw strategy in the classroom. Elliot Aronson was a social psychologist in Austin. He decided that by applying the effective strategy can develop the skills of the students and it can give educational positively. Jigsaw strategy has been studied and developed by many people. There have been many researches about the use of Jigsaw strategy that conducted by the researchers in various ways. Jigsaw has been used in

the learning process, especially when teaching reading comprehension in the classroom. Jigsaw strategy as been applied to the students from different subects and levels.

When teaching reading comprehension in the EFL classrooms, Jigsaw strategy was made as one of cooperative learning that can be used in the classroom. Every student needs to have understanding of the final product. That is why it can be stated that Jigsaw strategy can applied efectively in the classroom. It can be applied when the English teachers teach the reading comprehension in the classroom.

Some researchers have conducted the researches related with the application of the Jigsaw strategy in teaching the reading comprehension. The researchers presented one previous research in this research. The research was related with the application of the Jigsaw strategy in teaching the reading comprehension. A research entitled "*The Effectiveness of Jigsaw Strategy in Teaching Students' Reading Comprehension at Eight Grade Students of MTs N Gondang in The Academic Year 2015/2016*". This research was conducted by Fitriani Robbani. She was a student at English Department, Islamic Education and Teachers Training Faculty, State Islamic Institute of Surakarta in 2017. From the research, the writers concluded that Applying Jigsaw strategy was very effective in teaching the reading comprehension.

The researchers knew the problem in this resarch as the researchers had done an interview on August 24Th, 2020 to one of a teachers who teaches X at SMK Swasta Yapim Medan. Although the students have learned English, the students still have problems on reading comprehension, such as (1) Students have difficulties on comprehending English text, (2) Students have lack of vocabulary, (3) Students find difficult on finding the implicit meaning of text that they read, (4) Then, students have low of motivation on comprehending English texts and books. That problems can lead the students become poor in comprehending the text without realizing the effect due to their weakness and poor ability in learning the reading comprehension.

According to the explanation before, the researchers used the Jigsaw strategy in teaching the reading comprehension in Narrative Text to the students of SMK Swasta Yapim Medan. The researchers were interested in conducting this research. This resarch entitled "*The Effect of Jigsaw Strategy on the Students' Reading Comprehension at SMK Swasta Yapim Medan*".

According to the background as mentioned above, the problem in this research can be formulated "Does Jigsaw Strategy Affect the Students' Reading Comprehension at SMK Swasta Yapim Medan?". The research objective was to know about the effectiveness of the implementation of the Jigsaw strategy in teaching the reading comprehension to the tenth grade students of SMK Swasta Yapim Medan. This research was designed into experimental class and controlled class. In doing the research, the students were categorised into two groups. One group was in the experimental group and one group was in the controlled group. Jigsaw strategy was applied into experiemental group students and conventional teaching strategy was applied into the controlled group students. The researchers taught about Narrative Text to the students. The topic of the Narrative was about the Legend of Toba Lake. Students from grade nine of SMK Swasta Yapim Medan in the school years 2020/2021 were chosen as the population in this research. This research was expected to have theoritical and practical benefits. Theoritically, this research can give enrichment to the teachers especially when the English teachers teach reading comprehension to the students in the classroom. Practically, this research can give positive benefits for students especially giving motivation to the students in learning the reading comprehension in the classroom.

## METHOD

The researchers designed this research by applying the experimental with quantitative design. Aliage and Gunderston (2020) said that quantitative approach is the phenomena explanation by gathering data numerically and it can be analyzed mathematically according to the methods that used in the research. In quantitative approach, the researcher must gather data numerically. It can be stated that Mathematics must be used according to the method and the data that put into numerical form.

The researchers conducted this research at SMK Swasta Yapim Medan. This school is located at Jalan Air Bersih Medan. There are three levels of class in this school. The classes were grade ten, grade eleven, and grade twelve. The researchers did this research to the grade ten students of SMK Swasta Yapim Medan in the school years 2020/2021 in the first semester. This research was carried out in October 2020.

All the students from grade ten of SMK Swasta Yapim Medan in the school years 2020/2021 had been chosen as the population in this research. There were 12 classes as the total number of population. One class consisted of 35-45 students. 360 students were the total number of the students.

In conducting this research, cluster random sampling was applied by the research. The researchers used this sampling to get the sample that taken from the population. According to Guy (199:132) he stated that cluster random sampling is the sampling from groups, not individual. It means as the sample of the research, there must be a group of students. The students from the groups can be selected randomly. There must be similar characteristics of the students that will be chosen as the sample in the research. Two classes were chosen as the sample in this research. Then the researchers determined the sample randomly. One class was chosen as the sample into the experimental group and one class was chosen as the sample into the controlled group. The students from X-TKJ 1 were chosen as the experimental class and the students from X-TKJ 2 were chosen as the controlled group.

According to Arikunto (2002:127) it can be stated that test is the measurement of the students' ability. The test can be used into question or exercises form. This test can be used to measure the abilities (intelligence, skills, or knowledge) of the students in groups or individually. To measure the students' ability in reading comprehension, the writers can use a test, especially into reading comprehension test. Written test can be applied by the researchers to measure the students' ability, especially an ability in the reading comprehension. The researchers can give written test into multiple choice, essay, or another form. The researchers gave multiple choice questions to the students. There were 25 questions given to the students in the experimental class or in the controlled group. The question topic was about Narrative Text. The researchers gave the tests to the experimental class students and controlled class students. The researchers conducted the Pre-test and post-test to the students from experimental group and controlled group. There were data taken by the researchers after conducting pre-test and post-test.

According to Ary, et al (2010:117) standard deviation is the root of square from variance in which the variance becomes the average of the squared differences from the mean score. So, the researchers must be able to interpret the data of the students, especially after conducting the research. The researchers determined the technique of the analysis by using statistics. Normality test and homogeneity of the data were examined by the researchers. To know about the distribution of data was normal or not, the researchers did a test. Chi-square

formula was used by the researchers. This formula can be seen below. There were some steps in determining this examination of the data.

In determining the span (R), higher score is declined to the lower ones. This formula can be used to determine the intervals (P) from many class as drawn through formula below.

$$P = \frac{\text{span}(R)}{\text{many class}}$$

Making table distribution frequency

In determining the variants, this formula was used

$$S^2 = \frac{n \sum f_i X_i^2 - (\sum f_i X_i)^2}{n(n-1)}$$

In determining the Z score, this formula is used

$$Z = \frac{x - \bar{x}}{s}$$

Where:

X = the boundary of class

$\bar{X}$  = the mean score of the students

s = the standard deviation

The researchers tested the chi-square ( $\chi^2$ ) by using this formula.

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

In determining the distribution of the normality from the criteria: if  $\chi^2$  value >  $\chi^2$  table, the data cannot be stated as in normal distribution. So, there was a conclusion, If  $\chi^2$  value <  $\chi^2$  table, this data was stated as normal distribution. The researchers tested the Homogeneity to determine that data were homogen, or not. There was an explanation of the steps that can be seen below.

Tso had been compared to Fvalue by using Ftable  $12\alpha$  (nb-1) (nk-1) and dk = (k-1). Then If Fvalue < Ftable, the data distribution can be stated as homogen.

T-Test was applied in analyzing the independent sample. T-Test of the independent formula was used to measure the effectiveness of the technique that used by the researchers.

## DISCUSSION

The writers did a research to the students. Then the writers got the data. There were two kinds of the data, firstly the data of the pre-test, and secondly the data of post-test. Two kinds of the data can be seen by seeing the table as presented below.

Table 1. The Students' Score in the Experimental Group

| No         | Students' Initial | Scores of Pre-Test | Scores of Post-Test | Scores (Post Test - Pre Test) |
|------------|-------------------|--------------------|---------------------|-------------------------------|
| 1          | AS                | 35                 | 75                  | 40                            |
| 2          | APJW              | 65                 | 75                  | 10                            |
| 3          | ARLP              | 65                 | 75                  | 10                            |
| 4          | AP                | 65                 | 75                  | 10                            |
| 5          | BAA               | 55                 | 75                  | 20                            |
| 6          | CS                | 60                 | 75                  | 15                            |
| 7          | DM                | 45                 | 70                  | 25                            |
| 8          | ES                | 50                 | 75                  | 25                            |
| 9          | FNZ               | 55                 | 70                  | 15                            |
| 10         | FHG               | 45                 | 60                  | 15                            |
| 11         | FN                | 60                 | 75                  | 15                            |
| 12         | FES               | 45                 | 60                  | 15                            |
| 13         | IRS               | 65                 | 75                  | 10                            |
| 14         | IR                | 30                 | 70                  | 40                            |
| 15         | JPT               | 60                 | 75                  | 15                            |
| 16         | JA                | 55                 | 70                  | 15                            |
| 17         | MSL               | 60                 | 75                  | 15                            |
| 18         | MEBN              | 75                 | 95                  | 20                            |
| 19         | MAR               | 40                 | 60                  | 20                            |
| 20         | MAEU              | 65                 | 80                  | 15                            |
| 21         | MH                | 70                 | 85                  | 15                            |
| 22         | NS                | 55                 | 75                  | 20                            |
| 23         | PBS               | 55                 | 80                  | 25                            |
| 24         | PTBP              | 65                 | 80                  | 15                            |
| 25         | RPSW              | 35                 | 75                  | 40                            |
| 26         | RLO               | 40                 | 75                  | 35                            |
| 27         | SFP               | 55                 | 80                  | 25                            |
| 28         | SGG               | 60                 | 75                  | 15                            |
| 29         | VSRBM             | 55                 | 80                  | 25                            |
| 30         | ZUP               | 30                 | 50                  | 20                            |
| $\Sigma$   |                   | 1,650              | 2,245               | 595                           |
| Mean Score |                   | 55.00              | 74.83               | 19.83                         |

Table 2. The Students' Score in the Controlled Group

| No | Students' Initial | Scores of Pre-Test | Scores of Post-Test | Scores (Post Test - Pre Test) |
|----|-------------------|--------------------|---------------------|-------------------------------|
| 1  | AP                | 55                 | 60                  | 5                             |
| 2  | ASG               | 55                 | 65                  | 10                            |
| 3  | CN                | 35                 | 65                  | 30                            |
| 4  | EP                | 35                 | 60                  | 25                            |
| 5  | EKG               | 55                 | 65                  | 10                            |
| 6  | EJH               | 55                 | 65                  | 10                            |
| 7  | FT                | 60                 | 65                  | 5                             |
| 8  | HFM               | 30                 | 55                  | 25                            |
| 9  | JRS               | 30                 | 60                  | 30                            |
| 10 | LEVS              | 35                 | 65                  | 30                            |
| 11 | MAT               | 30                 | 60                  | 30                            |
| 12 | MSS               | 55                 | 60                  | 5                             |
| 13 | MFS               | 60                 | 65                  | 5                             |
| 14 | NS                | 55                 | 55                  | 0                             |
| 15 | NK                | 50                 | 65                  | 15                            |
| 16 | PTS               | 60                 | 70                  | 10                            |
| 17 | RKS               | 50                 | 45                  | -5                            |
| 18 | RJS               | 55                 | 65                  | 10                            |
| 19 | RAH               | 55                 | 55                  | 0                             |
| 20 | SMNAI             | 35                 | 60                  | 25                            |
| 21 | TS                | 60                 | 70                  | 10                            |

|    |     |            |       |       |
|----|-----|------------|-------|-------|
| 22 | UNP | 35         | 45    | 10    |
| 23 | VRT | 50         | 60    | 10    |
| 24 | YS  | 65         | 70    | 5     |
| 25 | YAP | 55         | 60    | 5     |
| 26 | YBT | 50         | 60    | 10    |
| 27 | YMH | 55         | 50    | -5    |
| 28 | ZAP | 55         | 60    | 5     |
| 29 | ZCP | 60         | 65    | 5     |
| 30 | ZUK | 30         | 45    | 15    |
|    |     | $\Sigma$   | 1,455 | 1,800 |
|    |     | Mean Score | 48.50 | 60.00 |
|    |     |            |       | 345   |
|    |     |            |       | 11.50 |

Table 3. The Comparison of Scores from Experimental Group and Controlled Group

| X Students<br>(Experimental<br>Group) | Y Students<br>(Controlled<br>Group) | X     | Y     | x     | y     | x.x      | y.y      |
|---------------------------------------|-------------------------------------|-------|-------|-------|-------|----------|----------|
| AS                                    | AP                                  | 40    | 5     | 20.17 | -6.5  | 406.83   | 42.25    |
| APJW                                  | ASG                                 | 10    | 10    | -9.83 | -1.5  | 96.63    | 2.25     |
| ARLP                                  | CN                                  | 10    | 30    | -9.83 | 18.5  | 96.63    | 342.25   |
| AP                                    | EP                                  | 10    | 25    | -9.83 | 13.5  | 96.63    | 182.25   |
| BAA                                   | EKG                                 | 20    | 10    | 0.17  | -1.5  | 0.03     | 2.25     |
| CS                                    | EJH                                 | 15    | 10    | -4.83 | -1.5  | 23.32    | 2.25     |
| DM                                    | FT                                  | 25    | 5     | 5.17  | -6.5  | 26.73    | 42.25    |
| ES                                    | HFM                                 | 25    | 25    | 5.17  | 13.5  | 26.73    | 182.25   |
| FNZ                                   | JRS                                 | 15    | 30    | -4.83 | 18.5  | 23.33    | 342.25   |
| FHG                                   | LEVS                                | 15    | 30    | -4.83 | 18.5  | 23.33    | 342.25   |
| FN                                    | MAT                                 | 15    | 30    | -4.83 | 18.5  | 23.33    | 342.25   |
| FES                                   | MSS                                 | 15    | 5     | -4.83 | -6.5  | 23.33    | 42.25    |
| IRS                                   | MFS                                 | 10    | 5     | -9.83 | -6.5  | 96.63    | 42.25    |
| IR                                    | NS                                  | 40    | 0     | 20.17 | -11.5 | 406.83   | 132.25   |
| JPT                                   | NK                                  | 15    | 15    | -4.83 | 3.5   | 23.33    | 12.25    |
| JA                                    | PTS                                 | 15    | 10    | -4.83 | -1.5  | 23.33    | 2.25     |
| MSL                                   | RKS                                 | 15    | -5    | -4.83 | -16.5 | 23.33    | 272.25   |
| MEBN                                  | RJS                                 | 20    | 10    | 0.17  | -1.5  | 0.03     | 2.25     |
| MAR                                   | RAH                                 | 20    | 0     | 0.17  | -11.5 | 0.03     | 132.25   |
| MAEU                                  | SMNAI                               | 15    | 20    | -4.83 | 13.5  | 23.33    | 182.25   |
| MH                                    | TS                                  | 15    | 10    | -4.83 | -1.5  | 23.33    | 2.25     |
| NS                                    | UNP                                 | 20    | 10    | 0.17  | -1.5  | 0.03     | 2.25     |
| PBS                                   | VRT                                 | 25    | 10    | 5.17  | -1.5  | 26.73    | 2.25     |
| PTBP                                  | YS                                  | 15    | 5     | -4.83 | -6.5  | 23.33    | 42.25    |
| RPSW                                  | YAP                                 | 35    | 5     | 20.17 | -6.5  | 406.83   | 42.25    |
| RLO                                   | YBT                                 | 35    | 10    | 15.17 | -1.5  | 230.13   | 2.25     |
| SFP                                   | YMH                                 | 25    | -5    | 5.17  | -16.5 | 26.73    | 272.25   |
| SGG                                   | ZAP                                 | 15    | 5     | -4.83 | -6.5  | 23.33    | 42.25    |
| VSRBM                                 | ZCP                                 | 25    | 5     | 5.17  | -6.5  | 26.73    | 42.25    |
| ZUP                                   | ZUK                                 | 20    | 15    | 0.17  | 3.5   | 0.03     | 12.25    |
| Mean Score                            |                                     | 19.67 | 11.50 |       |       |          |          |
| N1= 30                                | N2= 30                              | 590   | 340   | 0     | 0     | 2,318.17 | 3,101.50 |

The data were calculated by the researchers by doing the steps of the test. This formula was applied by the researchers.

1. This formula was used to measure the mean score of the students (variable X):

$$Mx = \frac{\sum X}{N_1} = \frac{590}{30} = 19.67$$

2. This formula was used to measure the mean score of the students (variable Y) :

$$M_x = \frac{\sum X}{N_1} = \frac{340}{30} = 11.33$$

3. This formula was used by the writers to measure the standard of Deviation score of variable X:

$$SD_x = \sqrt{\frac{\sum X^2}{N_1}} = \sqrt{\frac{2,318.17}{30}} = \sqrt{77.27} = 8.79$$

4. This formula was used by the writers to measure the standard of Deviation score of variable Y:

$$SD_y = \sqrt{\frac{\sum X^2}{N_{12}}} = \sqrt{\frac{3,101.50}{30}} = \sqrt{103.38} = 10.17$$

5. This formula was used by the writers to measure the Standard of Error mean score of variable X (experimental group):

$$SE_{Mx} = \frac{SD_x}{\sqrt{N_1-1}} = \frac{8.79}{\sqrt{29}} = \frac{8.79}{5.39} = 1.63$$

6. This formula was used by the writers to measure the Standard of Error mean score of variable Y (controlled group):

$$SE_{My} = \frac{SD_y}{\sqrt{N_2-1}} = \frac{10.17}{\sqrt{29}} = \frac{10.17}{5.39} = 1.89$$

7. This formula was used by the writers to measure the Standard of Error from different mean score of variable X (Experimental group) and mean score of variable Y (controlled group):

$$\begin{aligned} SE_{Mx-My} &= \sqrt{SE_{Mx}^2 + SE_{My}^2} \\ &= \sqrt{1.63^2 + 1.89^2} \\ &= \sqrt{2.66 + 3.57} \\ &= \sqrt{6.23} \\ &= 2.50 \end{aligned}$$

8. To determine  $t_o$  , this formula was applied by the writers:

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

$$= \frac{19.83 - 11.5}{2.50}$$

$$= \frac{8.33}{2.50}$$

$$= 3.33$$

$$df = (N1 + N2) - 2$$

$$df = (30 + 30) - 2$$

$$df = 60 - 2$$

$$df = 58$$

From the data as presented above, after applying jigsaw strategy to the experimental group students, the mean score students was 74.83. After applying conventional teaching strategy to the controlled group students, the mean score of students was 60.00. It means that teaching reading comprehension by applying Jigsaw strategy gave more significant impact to the students in the experimental group than the students who were taught by using conventional strategy.

After seeing the scores comparison from the experimental and controlled group, it can be stated that mean score of the students in the experimental group (variable X) was 19.67. Then the mean score of the controlled group students (variable Y) was 11.33. The standard of deviation score of experimental group students (variable X) was 8.79. The standard of deviation score of controlled group (varibale Y) was 10.17. Meanwhile it was known that the standard of error of mean score in the experimental group students (variable X) was 1.63. Then the Standard of Error mean score of controlled group students (variable Y) was 1.89. The Standard of Error from different mean score of experimental group students (variable X) and mean of controlled group students (variable Y) was 2.50. From the data, it was known that  $t_o$  was 3.33. According to those results, the writers concluded that  $H_o$  was rejected and  $H_a$  can be accepted.

In accordance with the result of the analysis that was conducted by the writers, there is a conclusion that using Jigsaw strategy give significant effect to the students' reading comprehension. The students' reading comprehension ability had been develop after learning by applying the jigsaw strategy. The students' scores from the experimental group had been increased after teaching by using Jigsaw strategy. It was different with the students from the controlled group that taught by applying the conventional teaching strategy.

## CONCLUSION

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It can be concluded that the students' scores from the experimental group significantly improved after taught by using jigsaw strategy. From the calculation of the t-test it was stated that there is a different achievement from experimental group students and controlled group students.

Then there were some suggestions given by the writers:

1. Jigsaw strategy can be recommended as one of appropriate strategies to teach the reading comprehension to the students in the classroom. Jigsaw strategy can promote the interdependence feeling positively and accountability individually of the students. Jigsaw strategy can be used to solve the class problems and difficulties that faced by the students. By applying this strategy, the students could cooperate each other in finishing the tasks.
2. The English teachers must be active in guiding the students, especially when the students were discussing about the topic. The English teachers can motivate the students. So the students will be brave in delivering their ideas, give responses to the other students, and the students can understand about the text that they are reading. In doing a discussion, the English teachers must be able to facilitate the students. The students must be encouraged how to give opinion, and how to understand the content of the text.
3. This jigsaw strategy can be applied intensively because this strategy is good to be developed by the students to improve their skills. The students can develop themselves to give opinion, how to discuss, and how to interpret a text. The students also can apply the jigsaw strategy in learning the English text especially about narrative text.

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