

THE EFFECTIVENESS OF USING HERRINGBONE TECHNIQUE TO TEACH READING COMPREHENSION OF NARRATIVE TEXT

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Abstract

This research was conducted to find out whether or not the Herringbone technique affected the teaching of reading comprehension of narrative text significantly to Year – 10 students of SMKN 03 Pontianak in Academic Year 2018/2019. This research was pre-experimental design with pre-test, post-test and three times of treatments. The data were collected through a multiple-choice test. The sample of the research was taken from Year – 10 AP4 classes which consist of 30 students. The finding showed that the mean score of the students' pre-test was 66 while the post-test was 86. It showed that the achievement of the students increased after the treatment was conducted. In this research, the researcher used the t-table α (0.05) with a degree of freedom 29 is 1.699 meanwhile, the result of the t-test is 9.70 it means the t-test was higher than the t-table ($9.70 > 1.699$). The result of the effect size (ES) was 1.82 which was categorized as a strong effect. It showed that the null hypothesis was rejected and the alternative hypothesis was accepted. It proved that the Herringbone technique affects significantly the students' reading comprehension of narrative text.

Keywords: *Reading Comprehension, Narrative Texts, Herringbone Technique.*

BACKGROUND

Reading comprehension is a skill to understand a written text. Snow (2002) defines reading comprehension as a process of simultaneously extracting and constructing meaning through interaction and involvement with written language. Reading comprehension involves the interaction of the readers with the written text to get meaning and message or information from the text. The students not only read but also comprehend the text to catch some ideas from the text. Comprehending a message from the text is one of the goals of English instructions. Alyousef (2005, p.144) defines reading as "an interactive process between the reader and the text which leads the reader to comprehend any information from the text". When the students are reading, they are in the thinking process by comprehending all

of the words, sentences, and paragraphs to get the meaning of the text as a whole.

The senior high school level year-10 students are taught to be able to comprehend the meaning of the short functional text and simple essay (curriculum 2013). The learners are expected to give a response in a simple essay. Besides, students should be able to explore their thinking and to identify what the author means. In short, the students at this level are expected to read and to understand the text comprehensively.

The material to teach in this pre-experimental study was narrative text. A narrative is a kind of enjoyable text to read. According to Pardiyono (2007) narrative text is a kind of text which has the function to amuse, to entertain and to deal with actual or various experiences in different ways. The students would be easier to read and produce

simple text because the text also tells something imaginative or something that is just a fantasy. In reading the narrative text, the researcher focused on the text of legend. According to Lombardi (2019), a legend is a story that's purported to be historical in nature but that is without substantiation. The story is handed down orally but continues to evolve with time.

Unfortunately, most of the students of SMKN 03 Pontianak have some difficulties in reading. Based on the information, the researcher got from the English teacher in that school, the researcher found some problems. The tenth-grade students have difficulties to comprehend a narrative text. Most of the students in the class could not answer the questions based on the text well. The students have lack vocabulary and they are hard to identify detail information and the main idea of the text. When the teacher asked them, they use just silent. They just pronounced the text but they do not understand what they have read well. The teachers should be able to teach students with an interesting technique so that the students feel happy and motivated to read and comprehend the text given. There are some techniques, which can be applied to teach reading, one of the techniques is the Herringbone technique.

Herringbone is a kind of technique used in teaching reading process. According to Deegan (2006) Herringbone strategy is a strategy that develops comprehension of the main idea by plotting who, what, when, where, why, and how the question on a visual diagram of a fish skeleton. Using the answer to the WH questions, the students write the main idea across the backbone of the fish diagram. According to Bouchard (2006), this technique is created to enhance students' reading comprehension by organizing important information in a text.

Herringbone is a kind of technique that in implementation and the occurrence of teaching is the presentation. In doing this research, the students worked in pairs. It is one of the cooperative learning methods.

Richards and Rodgers (2001, p.192) mention, "cooperative learning is an approach to teaching that makes maximum use of cooperative activities involving pairs and a small group of learners in the classroom". By pairs or small groups, students shared their ideas and trained creative thinking.

There was some research about the Herringbone technique that had been conducted by other researchers. Ary (2015) found that the Herringbone technique could improve students' reading comprehension skills. Furthermore, Andi and Indrawari (2015) proved that the use of the Herringbone technique was effective as a strategy to improve teaching reading comprehension of narrative text. The researcher was intended to find out whether Herringbone was also effective to be applied as a technique. Moreover, Nurjani et al (2015), it was found that there was a significant effect by using herringbone technique toward students reading comprehension of recount text. The focus of previous research was an experimental study that took control group in different class while this research was conducted a pre-experimental study only took one class as a sample.

Despite the similarities, there were some obvious differences between this research and other previous research. First, the difference was about the text being a target. This research used narrative text while other research mentioned above used a descriptive text and recount text unless research conducted by Andri and Indrawati. Second, the research participants were students of the vocational high school of tenth-grade students while other researches took in junior high school level. Third, the research design of this research is pre-experimental while other researchers used experimental and classroom action research. Therefore, the researcher intended to know the effectiveness of using the Herringbone technique in teaching reading comprehension of narrative texts in the Year-10 students of SMKN 03 Pontianak.

METHOD

This research was a Pre-experimental design that aimed to measure the significance of implementing the materials. According to Dowdy et al (2004, p.19), "pre-experimental design involves the collection of measurement or observation about populations that are treated or controlled by the experimenter". Pre-experimental was used by the researcher to find out the measurement result between the independent and dependent variables. Substantively, this method was applied in this research to prove the effectiveness of students' reading comprehension of narrative text in implementing an approach that was the use of the Herringbone technique. Another expert also states the explanation about the pre-experiment. "A pre-experimental design involves one group pre-test and post-test" Cresswell (2012, p.283) as described as follows:

T1	X	T2
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Figure1. One Group Pretest-Posttest Design

Notes:

T1: Pre-Test

X: Treatment

T2: Post-Test

This research involved XAP 4 class of Year-10 students of SMK Negeri 03 Pontianak consisted of 30 students with 24 females 6 males as the researched cluster sample. The data were collected using a written test applied before and after the treatment. Treatment was given to know the students' basic knowledge about reading comprehension of narrative texts. A test is the tool of data collection in this research. The form of the test was multiple choices. The test consisted of 20 items. Each test item (the pre-test and the post-test) was completed with 20 questions. The test was prepared by the researcher.

The test was constructed based on a table of the test item specification. It was to have the test validity in its content. According to Brown, (2001), a test is

effective not only because of its validity but also its reliability. In addition, the specification level of the test difficulty was completed after computing the reliability.

Validity

A valid test measures what it is supposed to measure. According to Arikunto (2006) the valid instrument, one of it can measure something which is wanted by uncovering the variable studied exactly. The method used in measuring the validation of the instrument is called content validity Arikunto (2006). A test or a measurement can be called a content test when it measures the special purpose which is equal with the material or content is given Arikunto (2006). The specification of items to measure the content validity is appropriate or not in reading comprehension test by Arikunto (2006, p.196), could be seen on the table as follow:

Table1. Specification of Vocabulary Test

Test items	Number of items	Total
Detail information	Who: 8,16 What: 5 When: 6,18 Where: 4,12 Why: 7,17 How: 2, 13,11	12
Main idea	3,9,15,19	4
Inference	1,10,14,20	4

Reliability

A reliability test is a test that provides a consistent set of scores for a group of individuals if it was controlled independently on some occasions. Porte, (2002, p.243) states that "reliability is a measure of how consistent repeated measurements are when performed under comparable conditions". A test is said to be reliable if it can produce stable or consistent scores although the test was administered at a different time. They should yield a similar result and the more similar the scores are, the more reliable the test is. Thus, the researcher did "try-out" for the test to the other time and respondents. In

this test, the researcher elaborated on the result using Kuder Richardson (KR21) to know the reliability of the test. The formula of reliability coefficient (Kubiszyn & Borich, 2009) as follows:

$$KR_{21} = \left(\frac{K}{K-1} \right) \left(\frac{1 - M(K-M)}{K(SD)^2} \right)$$

Legends:

KR_{21} : Coefficiency of Kuder Richardson Reliability.

K : the number of items in the test.

M : the mean of a test score.

SD: the standard deviation of the test score.

In order to calculate the standard deviation of the test (SD), the researcher applies the formula as follow:

$$SD = \sqrt{\frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N}}$$

(Ary, Jacobs, Sorensen, & Razavieh, 2010)

Legends:

SD :standard deviation of the Test Scores

N :number of items

$\sum X^2$:total sum of the squared

$\sum X$:total sum of the scores

The result of the reliability coefficient of the test score would be classified into the following classification as adapted from Burns (2000, p.344) as follow:

Table 2. Table of reliability coefficient of the Test Score

Coefficient	Reliability of the Test
0,00-0,9	Negligible (N)
0,20-0,39	Low (L)
0,40-0,59	Moderate (M)
0,60-0,79	Substantial (S)
0,80-1,0	High to very high (H)

After calculating the result of the try out by using reliability coefficient Kuder Richards on (KR 21) formula, the reliability coefficient of the test item is 0.71 Based on the classification to determine the reliability

of the test, it can be categorized as "Substantial". Therefore, the test item is reliable to be used for collecting the data.

Level of difficulty

A good test is a test which is not too easy or to the contrary too difficult for students. It should give an optional answer that can be chosen by students and not too far from the key answer. According to Blerkom (2009) item difficulty is the proportion of students who answered the item correctly. It represents how easy or difficult the test item from the students' point of view. To calculate the level of difficulty (LD) of each item which is proposed by Blerkom (2009, p.128) can be seen as follow:

$$LD = \frac{HG + LG}{N}$$

Legends:

LD :Level of difficulty

HG :Number of higher group' correct answer

LG :Number of lower group' correct answer

Classification of level of difficulty will be classified into the following classification as adapted from Blerkom (2009) as follows:

Table 3. Level of difficulty

Difficulty Level Index	Qualification
Minus – 0.29	Revised (R)
0.30 – 0.49	Difficult (D)
0.50 – 0.79	Moderate (M)
0.80 – 1.00	Easy (E)

In determining the number of high group and lower group, the students who took the try out was 30 students, and the number of high group and lower group was 15 students. The result of calculation shows that there are 2 items needed to be revised, 3 items are difficult, 8 items are moderate, and 6 items are easy

Discriminating power

The first step was computing is to separate the highest and the lowest scoring

group from the entire sample on the basis of total score the test. To measured discriminating power (DP) of the test, the writer provides the formula as proposed by Gronlund (1997, p.122):

$$DP = \frac{HG-LG}{1/2N}$$

Legends:

DP: discriminating power

HG :high group

LG : lower group

$1/2N$: half of the students in high and low upper and low group

The criteria used to classify the discriminating power are as follows:

Table 4. Item Qualification of Discriminating Power

DP	Item Qualification (IQ)
0.00 - 0.19	Revised (R)
0.20 - 0.29	Sufficient (S)
0.30 - 0.39	Good (G)
0.40 – 1.00	Very Good (X)

Gronlund (1997, p.113)

As the result of the computation for discriminating power that can be seen in table 3.3 on page 31, there are 4 items categorized as sufficient, 8 items are excellent, 2 items are good and 6 items needed to be revised

RESULTS AND DISCUSSION

Results

To answer the first research question, t-test is applied. To calculate $\bar{D}$,

The formula is $\bar{X}^2 - \bar{X}^1$. To answer the second research question is using Effect Size formula (ES). ES required Standard Deviation (S). Then, the order of computation was started from the mean score of pre-test and post-test, the difference of the mean score of the pre-test and post-test, t-test, standard deviation of the student's score and effect size.

Mean Score of pre-test

The students' mean score of pre-test was calculated as follow:

$$\bar{X}^1 = \frac{\sum X^1}{N} = \frac{1980}{30} = 66$$

From the result of pre-test, it was found that the students' mean score of achievement was 66 (sixty six) and categorized as average to good.

Mean Score of pre-test

The students' mean score of post-test was calculated as follow:

$$\bar{X}^2 = \frac{\sum X^2}{N} = \frac{2580}{30} = 86$$

From the result of post-test, it was found that the students' mean score of achievement was 86 (eighty six) and categorized as good to excellent.

Students' Interval Score of Pre-test and Post-test

The students' interval score of pre-test and post-test was calculated as follow:

$$\bar{D} = \bar{X}^2 - \bar{X}^1$$

$$= 86 - 66$$

$$= 20$$

Based on the result of calculation above, it was found that there is an increasing score between students' mean score of pre-test and post-test. The mean score of post-test was higher than the mean score of pre-test.

t-test

The significance of the treatment was computed by using t-test formula as follows:

$$\begin{aligned} t &= \frac{\bar{D}}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}} \\ &= \frac{20}{\sqrt{\frac{15700 - \frac{(600)^2}{30}}{30(30-1)}}} \\ &= \frac{20}{\sqrt{\frac{15700 - 36000}{30(29)}}} \\ &= \frac{20}{\sqrt{\frac{15700 - 12000}{870}}} \\ &= \frac{20}{\sqrt{\frac{3700}{870}}} \\ &= \frac{20}{\sqrt{4.25}} \\ &= \frac{20}{2.06} \\ &= 9.70 \end{aligned}$$

Based on the t-test computation above, the result was 9.70. The researcher checked the t-distribution table of significance (t-table) 5% with degree of freedom (df) = $N_1 - 1$, the researcher found: $df = 30 - 1 = 29$. Since the result of df was 29, then the t-table value is 1.699 at 0.05 level. It means t-test was bigger than t-table ($9.70 > 1.699$). The significance difference can be interpreted that the students' achievement in reading comprehension of narrative text was significance after being taught by Herringbone technique.

Standard Deviation of Students Scores Standard Deviation of Pre-test

The calculation of standard deviation of pre-test was described as follow:

$$S_1 = \sqrt{\frac{\sum (X_1 - \bar{X}_1)^2}{N}} = \sqrt{\frac{1980}{30}} = \sqrt{66} = 8.12$$

The result of standard deviation was put in standard deviation between pre-test and post-test formula.

Standard Deviation of Post-test

The calculation of standard deviation of post-test was described as follow:

$$S_2 = \sqrt{\frac{\sum (X_2 - \bar{X}_2)^2}{N}} = \sqrt{\frac{1135}{30}} = \sqrt{37.83} = 6.15$$

The result calculation of standard deviation of post-test was used to find out the standard deviation between pre-test and post-test.

Standard Deviation as a whole

The calculation of standard deviation between pre-test and post-test was calculated as follow:

$$\begin{aligned} S &= \sqrt{\frac{(N_1 - 1)S_1^2 + (N_2 - 1)S_2^2}{N_1 + N_2 - 2}} \\ &= \sqrt{\frac{(29)201.20 + (29)37.82}{30 + 30 - 2}} \\ &= \sqrt{\frac{5834.8 + 1096.78}{58}} \\ &= \sqrt{119.51} \\ &= 10.93 \end{aligned}$$

Based on the calculation above, the result of the standard deviation as a whole between pre-test and post-test was 10.93. The

result of standard deviation as a whole was put on Effect Size formula.

The Effect Size

To obtain the degree of effectiveness of the treatment, effect size formula was applied. The computation can be seen as follow:

$$ES = \frac{X_2 - X_1}{S}$$

$$ES = \frac{86 - 66}{10.93}$$

$$ES = \frac{20}{10.93}$$

$$ES = 1.82$$

As shown in the above computation, the effect size is 1.82. The result obtained is more than 0.8 ($ES > 0.08$) which is considered as very strong effect size. It can be concluded that the Herringbone technique is very strongly affected students' reading comprehension of narrative text.

Hypothesis Testing

From the result of computation, it is obtained that the test has indicated a significance difference. The calculation of t-test indicates 9.70. The t-test at 0.05, with degree of freedom ($N - 1$; $30 - 1 = 29$) is 1.699. It can be interpreted that the treatment had increased the student's score. It can be concluded that the use of Herringbone technique in teaching reading comprehension of narrative text was effective. Therefore, the null hypothesis (H_0) which said "The implementation of the Herringbone technique does not affect the students' achievement in reading comprehension of Narrative Text" was rejected. Moreover, the alternative hypothesis (H_a) which said "The implementation of the Herringbone technique affects the students' achievement in reading comprehension in Narrative Text" was accepted.

Based on the calculation, the result showed that the effect size was 1.82. According to Mujis's Criteria, 1.82 is higher

than 0.8 ($1.82 > 0.8$). So, the result was categorized as strong. It means that the higher of the effect size value, the higher the effectiveness of teaching reading comprehension of narrative through Herringbone technique.

Discussion

This research proves that the use of herringbone technique was effective for teaching student's reading comprehension of narrative texts. This technique helped the students organize important information and the main idea of a narrative text. Students showed their passion during the teaching-learning process. The students were excited about applying the herringbone technique which organized the important information and main idea based on the questions had provided. This finding is in line with what Bouchard (2006) states that the herringbone technique enhances students' reading comprehension by organizing important information. Another following finding is in line with Bouchard (2006). Thaler (2008) states that the herringbone technique is useful for analyzing a single idea or text. Based on the data analysis, the researcher found that the students' score in reading comprehension of narrative text was dissimilar before and after using the herringbone technique. As known, the mean score of the post-test was higher than the mean score of the pre-test. It means that the herringbone technique helped the students to comprehend a narrative text.

The researcher found that the students made significant progress in comprehending a narrative text. The students organized the detail information contains who, what, where, when and why questions. Furthermore, the researcher also found that the students increased their ability to determine the ideas of the text. They showed their understanding of finding the topic of a text. They were capable of concluding the whole story into the moral value that they can infer from the text. The students understand the story better when discussing with a teacher because they have guidance on its process. This technique made them feel easy

and active in comprehending a narrative text. This finding refers to the previous research conducted by Ary (2015). He found that the Herringbone technique improved students' reading comprehension skills.

Besides, from the researcher's observation, the students were more curious during the treatment process. The students were encouraged to comprehend a narrative text using a herringbone diagram that is an uncommon way of teaching reading comprehension. It is showed that the result of the pre-test and post were increased. The finding supports the previous research conducted by Nurjani et al (2015). The result indicates there was a significant effect by using the herringbone technique. The researcher concluded that reading comprehension of narrative text to the year-10 students of vocational high school. It is proven that the herringbone technique help students reading comprehension of narrative text to the year-10 students of SMKN 03 Pontianak. It means the alternative hypothesis (H_a) is accepted and the null hypothesis (H_o) is rejected.

After having the entire process of the research, It can be concluded that the result of the students' mean score of post-test (86) is higher than the mean score of the pre-test (66). The difference score of pre-test and post-test is highly significant. It can be proven by the result of the t-test of 9.70, which is higher than t-table 1.699, with the degree of freedom of 29. Herringbone technique could strongly help the students' reading comprehension of narrative text. The result showed the achievement of students was 1.82, which is higher than 0.8, or $ES > 0.8$ ($1.82 > 0.8$).

This result indicated that the use of the Herringbone technique could strongly help the students' reading comprehension of the narrative text. In the interpretation of the hypothesis of this research, the null hypothesis was rejected because the result of the t-table was higher than the t-table. Therefore, the alternative hypothesis was accepted in this research.

CONCLUSIONS AND SUGGESTIONS

Conclusions

After having the entire processes of the research, It is concluded that the result of students' mean score of post-test (86) is higher than the mean score of pre-test (66). The difference score of pre-test and post-test is highly significant. It can be proven by the result of the t-test of 9.70, which is higher than t-table 1.699, with the degree of freedom of 29. Herringbone technique could strongly help the students 'reading comprehension of narrative text. The result showed that the achievement of students was 1.82, which is higher than 0.8, or $ES > 0.8$ ($1.82 > 0.8$).

This result indicated that the use of Herringbone technique could strongly help the students' reading comprehension of the narrative text. The interpretation of hypothesis of this research, the null hypothesis was rejected because the result of t-table was higher than t-table. Therefore, the alternative hypothesis was accepted in this research.

Suggestions

Related to the result of this research, the researcher gives some suggestions. They are: 1) In this research, the students had difficulties in presenting their answers because of the limitation of vocabulary. The students felt insecure during the discussion. Therefore the teacher needs to motivate and control the students in doing discussion. 2) In using the Herringbone technique, the teacher is recommended to use appropriate reading material which is an unfamiliar story, so that it can encourage students' critical thinking and curious. 3) It is suggested for the researcher to use the Herringbone technique since it helps students in comprehending a text, especially a narrative text. It was established by the rise of students' score achievement in this research. 4) Before starting the Herringbone technique, it would be better for the teacher to provide language features of each paragraph, it made students more focus on answering WH questions. 5)

The other researchers may conduct further research on the use of Herringbone technique in teaching other text besides narrative text and other language skill besides reading comprehension.

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