Improving students’ ability in reading comprehension by using herringbone technique

Putri Amelia Simbolon*, Bloner Sinurat*, Dumaris E. Silalahi*

*Department of English Education, Universitas HKBP Nommensen Pematangsiantar, Pematang Siantar, Indonesia.

Abstract: The goal of this research is to find out if herringbone technique significantly affects to the tenth-grade students in comprehending recount text at SMA Swasta Kampus Nommen Noomsen Pematangsiantar. This research is quantitative research with quasi experimental research design. The sample for this research is taken from two classes namely experimental class (X-3) consist of 30 students that used herringbone technique and control class (X-2) consist of 30 students that used conventional technique selected by purposive sampling. The instruments for collecting data is reading comprehension test. The test is divided into two parts, namely the pre-test and the post-test, which are given to each sample. The researcher finds the total mean score of post-test in experimental group is 79.45 and the total mean score post-test in the control group is 72.22. After calculating the data from all points, the t-test score is 2.120. Then, the researcher consulted the value on the t-table, which has a significance of 5% and the value is 1.672. Therefore, the researcher finds that t-test is higher than the t-table (2.120 > 1.672). It can be concluded that \( H_a \) is accepted while \( H_0 \) is rejected. The use of Herringbone Technique is significantly affect to the tenth-grade students in comprehending recount text at SMA Swasta Kampus Nommen Noomsen Pematangsiantar. Herringbone technique helps students to improve reading comprehension in developing main idea and finding detail information from the text.

Keywords: Herringbone; reading comprehension; recount text; technique

Introduction

Language as a tool of communication plays an important role in human interaction. According to Sihombing et al (2021), language is a tool for communication and the most important part of people’s lives to communicate and because language is able to help provide information, ideas, main ideas, concepts, or feelings for others. Language allows people to communicate their goals and ensures that information and messages conveyed to others and to society are conveyed correctly. There are numerous languages spoken throughout the world. English is one of the international languages used as the language of communication between all nations and countries around the world. English is also one of the most widely used languages in every aspect of life, such as science, education, business, and entertainment. People utilize English to interact with others who come from different cultural backgrounds. More than that, people use it as a medium to acquire knowledge, science and technology (Silalahi et al., 2022).

To face the era of globalisation, English is one of the foreign languages needed and used to interact with other countries. The use of English is always growing rapidly along with the increase of science and technology. English must be truly mastered by all circles to be able to keep up with the development of science and technology and so as not to be left behind from others. Realizing the importance of English, students are required to be able to compete with people around the world. In line with that, to enhance human resources, reading culture must be developed in a country, especially in Indonesia, so that the country becomes more qualified in various fields. One of the ways that can be used to improve human resources is by reading culture which is a transfer of knowledge to produce productive thoughts for the progress of society. Through reading, there are many benefits that we can get. By reading, students can broaden their
horizons, increase knowledge, add ideas and increase information for themselves and can also share it with others, so it is clear that the influence of reading is very large on improving the way of students’ thinking (Purba et al., 2023).

According to Serravallo (2010), reading is thinking and understanding and getting at the meaning behind a text. It means that the goal of reading is comprehension of the text providing information that the author wants readers to understand in certain ways. To be successful in reading, students must be able to understand the text they read because reading is one of the ways teachers use to convey learning objectives, this affects students’ understanding of the material delivered by the teacher, because without reading students cannot understand the material, and learning process will not run easily. The essence of reading itself is comprehension. Comprehending is an activity carried out to understand the content of reading in depth so that readers can find various knowledge and information contained in the reading. In another terms it is called as reading comprehension.

According to Woolley (2011), reading comprehension is the process of making meaning from text. The goal, therefore, is to gain an overall understanding of what is described in the text rather than obtain meaning from isolated words or sentences. Therefore, the point of reading is to understand the text. Students not only need to read the text, they also need to grasp its meaning. When students only read the text without understanding its meaning, they are doing something in vain, because reading without comprehension is meaningless. So, it can be concluded that comprehension is important in reading.

Furthermore, based on the 2013 curriculum, senior high school students are expected to be able to understand and produce short functional texts that include recount, narrative, report, descriptive, procedure, analytical exposition, and explanation (Manullang et al., 2022). Through the 2013 curriculum, in the senior high school syllabus, students are asked to recognize recount texts. The syllabus requires students to comprehend recount text in several elements. These elements are function, generic structure, and language feature in both spoken and written. Recount text is a type of text that serves to retell events or experiences that occurred in the past. Recount text is used to retell about an even that has occurred in the past.

Based on the researcher’s experience during the internship at SMA Kampus Nommensen Pematangsiantar, students still have problems in comprehending recount text. The first factor is from the students. In reading text, students did not understand the content of text. They did not know how to comprehend the text and get information from the text. During reading activities in the teaching and learning process, students often lose focus and as a result they talk to their friends for other matters, this can result in the reading teaching process not going well. In addition, When the teacher asks questions, they cannot answer the questions correctly because they have difficulty in understanding the text because their lack of vocabulary. Usually when the teacher tries to explain the reading material, the teacher uses power point and textbook to explain the material. In the learning process, the teacher explains the material, students are asked to read the text, the teacher asks questions and answers with students, the teacher asks students to write the material in the notebook and the teacher gives assignments to students. As a result of teacher’s monotonous technique in teaching, the students became bored and lazy.

Table 1. Students’ Score in Reading Comprehension

<table>
<thead>
<tr>
<th>No.</th>
<th>Class</th>
<th>Score ≤72</th>
<th>Score ≥72</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>X-2</td>
<td>20</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>2.</td>
<td>X-3</td>
<td>23</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>43</td>
<td>17</td>
<td>60</td>
</tr>
<tr>
<td>Percentage</td>
<td></td>
<td>72%</td>
<td>28%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Based on the results obtained when students answered 20 multiple choice items. Out of 60 students from class X-2 and X-3 it can be seen that out of 43 students get score ≤72 and 17 students get score of ≥72. So, there are still many students who have not reached the minimum score of 72 than students who have reached the minimum score of more than 72-100. The results of students’ reading comprehension tests indicate that students still have difficulties in comprehending recount text, such as, students have difficulty in finding the main idea of the text, they have difficulty finding detail information, and they also could not understand the meaning of certain words from the text because their lack of vocabulary.

Therefore, teachers need to use appropriate and engaging technique during the teaching-learning process in order to solve this problem. Based on the above problems, the researcher tried to solve the problem by using Herringbone technique to teach students to comprehend recount text. According to Deegan (2006) Herringbone technique is a technique that develop comprehend of the main idea by plotting who, what, when, where, how, and why questions on a visual diagram of a fish skeleton.

In previous research on the use of Herringbone technique conducted by Losi (2020), Nurhasina, Baa & Muhayyang (2023), Setyadik, Yundayani, & Suratinah (2023), Halimah et al (2023), and Lumbantobing, Pardede and Herman (2020) investigated that using Herringbone technique is an effective technique to improve students in reading comprehension. Thus, it can be concluded that Herringbone is a technique which students actively practice understanding the text and quickly learn the meaning of the text.
Method

Research design

A research design is a plan or strategy created to structure research and make it as practical as possible, in an effort to answer research questions based on the evidence and letters we present (Cohen, Manion & Morrison, 2018). Quantitative research design explains phenomenon in form of numerical data which is analysed mathematically or using statistical procedures. It is commonly applied in educational research which related into the students’ achievement, quantitative research design is used to analyse the data in form of students’ scores or in form of numbers (Silalahi, 2020:196). Referring to this definition, this research used quantitative by the reason that the data was analyzed by using statistical research. In line with that, this quantitative research utilised a quasi-experimental design to assess the effectiveness of herringbone technique in teaching reading comprehension of recount texts on the tenth grade students.

A quasi-experimental is a prospective or retrospective study where patients self-select into different treatment groups to compare their effectiveness and safety (Maciejewski, 2020). This research conducted in two groups, experimental and control groups, which involved pre-test and post-test measurements for two groups. According to Gay (2009), the experimental group is a group that receives a new treatment. The experimental group taught by using herringbone technique. In contrast, the control group will be received instruction with conventional technique.

<table>
<thead>
<tr>
<th>Table 2. Research Design</th>
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<tbody>
<tr>
<td>Group</td>
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<tr>
<td>-------</td>
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<tr>
<td>X-3</td>
</tr>
<tr>
<td>X-2</td>
</tr>
</tbody>
</table>

Note:
X₁ : Pre-test (experiment)
Y₁ : Pre-test (control)
X₂ : Post-test (experiment)
Y₂ : Post-test (control)

Population and sample

The existence of population and sample has a very important role in a research. A population is a larger group that is the object of generalisation. Ary et al. (2010) proposed that population as all members of a well-specified class of people, events, or objects. Furthermore, according to Creswell (2012), the target population is a group of individuals (or groups of individuals) with some common characteristics that can be identified and studied by researchers. The populations in this research are all students of class X of SMA Swasta Kampus Nomennen Pematangsiantar in the academic year 2023/2024. There were 4 classes with the total population of class X were 120 students.

<table>
<thead>
<tr>
<th>Table 3. Population of the Research</th>
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<tbody>
<tr>
<td>Class</td>
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<tr>
<td>-------</td>
</tr>
<tr>
<td>X-1</td>
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<td>X-2</td>
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<td>X-3</td>
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<td>X-4</td>
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<tr>
<td>Total</td>
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</table>

A sample is the small quantity of population. According to Fraenkel, Wallen & Hyun (2012), sample is a group for which information is collected, and sample usually refers to the process of selecting those individuals. In determining the sample for this research, the researcher used purposive sampling. Ary, et al. (2010) explained that purposive sampling is known as judgement sampling, namely sample elements that are considered typical or representative of the population. It can be said that purposive sampling is one of the sampling that is selected based on knowledge of the population and research objectives. Subjects are selected because of some characteristics, such as: the same English teacher, the methods used in the teaching and learning process, they have learned recount text at first semester and the last characteristic is the two classes have nearly the same average score.

In this research, the total of tenth grade students at SMA Swasta Kampus Nommensen Pematangsiantar were 120 students. Here, the researcher used 2 classes as the sample. One class was selected as the experimental group, namely class X-3 was taken from 30 students. The experimental group was the group that got the treatment or used Herringbone technique when reading recount text, and the other was selected as the control group which was treated with conventional technique or did not use herringbone technique on learning in reading comprehension of recount text, namely class X-2 was taken from 30 students.
The technique of data collection

In this research, researcher employed a pre-test, treatment, and post-test approach. The pre-test and post-test scores of students in each class were utilized to gather data.

Pre-Test

Before receiving any treatment in the experimental class, all participants took a pre-test. The objective of this test was to assess the students’ comprehension of recount texts prior to being introduced to the herringbone technique. Both the control and experimental classes were administered the same test, which consisted of 30 multiple-choice questions and had a time limit of 30 minutes.

Treatment

Following the pre-test, both the experimental and control classes underwent specific treatments. The experimental class was taught using the Herringbone Technique, while the control class received conventional teaching methods. The teaching and learning process in the experimental class followed the following procedure:

a. Students were divided into small groups to work collaboratively.

b. The teacher selected suitable materials based on the students’ proficiency level.

c. The teacher created a herringbone pattern and instructed the students to record their answers to the questions provided on the pattern. The students gathered information by employing comprehension questions, such as the 5W + 1H approach. Subsequently, they read and recorded the obtained information.

d. The teacher explain how to determine the main idea through the information that students have collected.

e. Students write the main idea through the information that has been collected.

f. Students discuss the results with other students and the teacher through the information that has been recorded in the diagram.

Post-test

The post-test will be administered to students during the final session following the treatment. Students will be allotted a total of 30 minutes to complete the question sheet. The purpose of the post-test is to assess the final scores and determine the variance in student scores before and after receiving the treatment. This will help identify any significant differences in student achievement between the pre-test and post-test scores.

Technique of data analysis

Analyzing data is a requirement for quantitative research. After all relevant data from the lists of pre-test and post-test values from both the experimental and control groups have been thoroughly acquired, data analysis is completed.

After collecting the data, the researcher proceeded to analyze it using the following procedures:

Scoring test

\[ S = \frac{S}{T} \times 100 \]

Note:
- S = score
- s = student’s correct answer
- T = Total number of item

Calculating the average score for each group

\[ \bar{x} = \frac{\sum f x}{N} \]

Note:
- \( \bar{x} \) = the average score
- \( \sum fx \) = sum of the raw score
- N = number of student

Determining the standard deviation for each group

\[ S = \sqrt{\frac{\sum d^2}{N - 1}} \]

Note:
- S = standard deviation
- \( \sum d^2 \) = sum of mean deviation
- N = number of students
- 1 = constant number

(Hatch & Farhady, 1982)

Finding standard error of differences of mean

\[ SE(Xe - Xc) = \sqrt{\left(\frac{se}{\sqrt{N1}}\right)^2 + \left(\frac{sc}{\sqrt{N2}}\right)^2} \]

Note:
- SE(Xe-Xc) = standard error
- se = standard deviation of experimental
- sc = standard deviation of control
- N1 = number of students of experimental
- N2 = number of students of control

(Hatch & Farhady, 1982)
Finding out t-test

\[ t_{test} = \frac{X_e - X_c}{SE(X_e - X_c)} \]

Note:
- \( X_e \) = Mean of post-test in experimental
- \( X_c \) = Mean of post-test in control
- \( SE(X_e - X_c) \) = standard error

(Hatch & Farhady, 1982)

**Result**

Based on the data analysis, it was found that the use of herringbone technique significantly affected to the tenth-grade students in comprehending recount text at SMA Swasta Kampus Nommensen Pematangsiantar. The researcher found some findings as follows:

1. The researcher found that, there is significant effect of using herringbone technique on students’ reading comprehension. The highest score in Pre-test is 63.3 and the lowest score is 43.3. In Post-test the highest score is 90 and the lowest score is 66.7. The total score for Pre-test is 1466.6 and the total scores for Post-test is 2383.5, the standard deviation is 6.96 and the last the score of mean in Pre-test is 48.88 and the scores of mean in Post-test is 79.45.

2. The following is the description of the students’ scores in applying conventional technique in teaching recount text. The highest score in Pre-test is 66.7 and the lowest score is 43.3. In Post-test the highest score is 86.7 and the lowest score is 60. The total score for Pre-test is 1486.7 and the total scores for Post-test is 2166.6. The standard Deviation is 3.69 and the last the scores of mean of the Pre-test is 49.56 and the scores of mean for Post-test is 72.22.

![Figure 1. Post-Test, Pre-Test, and Standard Deviation of Experimental and Control Class](image)

3. The researcher found that the t-test is higher than t-table and it showed in figure 4.2 referring on the statistical analysis using the t-test, the researcher found that t-test was higher than t-table (2.120 > 1.672) at the level of significance 5% and a degree of freedom of 58. Therefore, the alternative hypothesis (H_a) is accepted and rejected the null hypothesis (H_0). It showed that herringbone technique was significantly affect to the tenth grade students in comprehending recount text at SMA Swasta Kampus Nommensen Pematangsiantar.
Discussion

After conducting research, analysing data, and testing hypotheses, the researcher found several findings that answered the research problem. The objective of this research is to find if herringbone technique significantly affects the tenth-grade students in comprehending recount text at SMA Swasta Kampus Nommensen Pematangsiantar. This research proved that the use of herringbone technique was effective for teaching student’s reading comprehension of recount texts. This technique helped the students organize detail information and the main idea of recount text. Students showed their passion during the teaching learning process. The students were excited about applying the herringbone technique which organized detail information and main idea based on the questions had provided. This finding is in line with what Deegan (2006) stated that the herringbone technique enhances students’ reading comprehension by organizing detail information and main idea from the text.

Referring the data analysis, Both groups showed an improvement for their result of teaching. For the control group, the mean score has increased from 49,56 up to 72,22. And for the experimental group, the mean score increased from 48,88 up to 79,45. By seeing those scores, both classes made their improvement, but the different is the experimental class which being treated by herringbone technique showed a higher significant effect than the other group who had a conventional teaching technique in their learning. It can be proven by the result of the t-test of 2,120 which is higher than t-table 1.672, with the degree of freedom of 58. It means that there is significant effect of herringbone technique on students reading comprehension of recount text at SMA Swasta Kampus Nommensen Pematangsiantar.

This research also relevance with previous researches by Losi, (2020) and Halimah et al. (2022). The similarities of previous researchers and this research that the utilization of herringbone technique has a significant effect on students’ reading comprehension. The difference can be found from research design. Research design by Losi (2020) used pre-experimental design with one group pre-test and post-test design. While in this research design used quantitative research with quasi experimental research design. Another difference can be found from the findings of this research and previous researchers. Research findings by Halimah (2022) that the herringbone technique is seen as a tool to assist students in finding supporting information from a text. While the findings of this research have shown that the herringbone technique helps students to enhance reading comprehension by organising detailed information from a text to find the main idea from a text.
Conclusion
The aim of this research was to find out if herringbone technique significantly affects to the tenth-grade students in comprehending recount text at SMA Swasta Kampus Nommensen Pematangsiantar in academic 2023/2024. Instrument that use to collect the data is reading comprehension. The test is divided into two parts, namely pre-test and post-test. Those tests are given to experimental class (X-2) and control class (X-3). Reading comprehension test is focus on literal and inferential level which contained finding the main idea, making inferences from text, finding detail information, identifying reference, and understanding vocabulary.

Based on the findings of this research, the researcher concluded that the application herringbone as a learning technique has a significant effect on the students’ reading comprehension at SMA Swasta Kampus Nommensen Pematangsiantar. It can be seen from the mean score of experimental group, which is 48,88 at the pre-test and has increased up to 79,46 at the post-test. While in the control group obtained the mean score of pre-test is 49,56 and has increased up to 72,22. The t-test result is 2,120. The value of t-test > t-table (2,120 > 1,672) with significance level of 5%. Led to the conclusion that t-test was greater than t-table. It also showed that the alternative hypothesis (H₁) was accepted and null hypothesis (H₀) was rejected.

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Disclosure statement
"The authors declare no conflict of interest.”

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