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## Comparative Study: Herringbone vs Story Mapping Technique in Improving Students' Reading Comprehension

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**Abstract-** This study aimed to identify differences in students' reading skills through the application of herringbone and story mapping methods on narrative text. This type of research is quantitative with a quasi-experimental design. The population of this study was all grade VIII students at SMP Negeri 1 Rengel, with samples determined through purposive sampling; class VIII-A received treatment using the herringbone technique, while class VIII-C used the story mapping technique. In this study, data were collected through tests consisting of a pre-test and post-test, which were then analyzed by an independent t-test. The findings showed a tcount was 9.745 and the ttable was 1.999. This indicates that the tcount is greater than the ttable, or  $9.745 > 1.999$  at a significance level of 0.05 (two-tailed), so the alternative hypothesis ( $H_a$ ) is accepted, and the null hypothesis ( $H_0$ ) is rejected. Thus, it can be concluded that there is a significant difference in students' reading comprehension of narrative texts through the application of herringbone and story mapping techniques.

**Keywords** – Herringbone Technique, Story Mapping Technique, Reading Comprehension, Narrative Text

**Abstrak-** Penelitian ini bertujuan untuk mengidentifikasi perbedaan dalam keterampilan membaca siswa melalui penerapan metode herringbone dan story mapping pada teks naratif. Jenis penelitian ini adalah kuantitatif dengan pendekatan quasi-experimental. Populasi pada penelitian ini adalah seluruh siswa kelas VIII di SMP Negeri 1 Rengel, dengan sampel yang ditentukan melalui purposive sampling; kelas VIII-A menerima perlakuan menggunakan teknik herringbone, sementara kelas VIII-C menggunakan teknik story mapping. Dalam studi ini, data diambil melalui tes yang terdiri dari pre-test dan post-test, yang selanjutnya dianalisis dengan independent t-test. Temuan penelitian menunjukkan nilai thitung sebesar 9.745 dan ttabel sebesar 1.999. Hal ini mengindikasikan bahwa thitung lebih besar daripada ttabel, yaitu 9.745 lebih besar dari 1.999 pada tingkat signifikansi 0,05 (uji dua arah), sehingga hipotesis alternatif diterima dan hipotesis nol ditolak. Dengan demikian, dapat disimpulkan bahwa terdapat perbedaan signifikan dalam pemahaman membaca siswa pada teks naratif melalui penerapan teknik herringbone dan story mapping.

**Kata kunci** – Teknik Herringbone, Teknik Story Mapping, Pemahaman Membaca, Teks Naratif

## INTRODUCTION

Communication is the main function of language, enabling the exchange of messages between individuals and highlighting the importance of language in our lives (Tirtanawati, 2018). English, a universal language, serves as a means of communication among people around the world. A country needs to interact with other countries on a global level, so understanding international languages is a major factor, especially for developing countries like Indonesia. Four skills are taught in English classes. They are speaking, writing, listening, and reading. Students need these skills to learn English, especially for reading.

Reading is the ability to translate words to obtain information through written texts (Hasanudin & Fitrianiingsih, 2020). Reading will be the main focus in this study. Reading is an interactive process that leads to comprehension and involves the reader and the text (Tirtanawati, 2016). Reading is considered a way to gain important information and knowledge. The more he reads, the more information he gets.

Nurdianingsih F (2021) States that there are three main concepts about reading, namely: (1) the process of learning how to pronounce words, (2) the process of recognizing information in words and understanding the meaning contained in them, and (3) the process of taking messages from a text or giving meaning to the text read. Along with the development of reading skills, a person not only recognizes words but is also able to interpret information in text. This shows that reading is not just a passive activity, but an active process that involves understanding and analyzing the text. Therefore, good reading skills will greatly affect the extent to which a person can access and understand the knowledge around them. For example, in education, good reading skills allow students to obtain broader and deeper information from various sources, to enrich their understanding.

Based on the pre-observation conducted with the English teacher of SMP Negeri 1 Rengel, the researchers identified several significant problems in students' reading comprehension. First, many students had difficulty understanding the meaning of words due to their limited vocabulary. Their limited vocabulary makes it difficult for them to comprehend the overall meaning of the text, in addition to making it harder for them to learn words. Nuttall in Lestari et.al (2019) States that to read effectively, one needs to master five main aspects: finding the main idea, drawing conclusions, recognizing references, finding detailed information, and understanding vocabulary. Unfortunately, the lack of vocabulary owned by students has an impact on their ability to recognize the main idea and supporting details in a text.

Second, limited vocabulary also hinders students' ability to understand and capture the main idea of the text they read. Another problem that arises is the lack of effective use of learning media, which makes students feel anxious or easily bored when learning English. During this time, teachers only rely on commercial textbooks without applying appropriate teaching techniques in the teaching and learning process. The application of appropriate strategies is very important so that students are more focused and actively involved in class, and the use of interesting learning media can increase their interest in participating in learning activities.

There are several reasons to compare the herringbone and story mapping techniques in teaching reading comprehension. Nurdianingsih (2014) States graphic organizer is one of the teaching methods that can be used to teach reading. Both use

visual aids to help students organize information, but they focus on different aspects. The herringbone technique helps students find important details by answering questions such as the six key questions like who, what, when, where, why, and how (Dye, 2000). Meanwhile, the story mapping technique encourages students to map out the elements of narrative texts, such as characters, setting, and plot (Idol, 1987).

Herringbone technique is a visual fish skeleton that can improve students' comprehension by helping them identify the main idea through answering key questions—who, what, when, where, why, and how (Deegan in Firda, et.al, 2016). After answering the WH questions, students organize the answers into a main idea that is written on the backbone of the fish diagram. This helps them to organize their understanding of the text and improve their overall reading ability.

Story Mapping is a visual technique that helps students understand the structure of a text in a more focused and fun way. Students are asked to map the important elements in the story, such as character, setting, plot, and resolution, in the form of a simple story map. In this way, students not only read but also actively build a picture of what they read, making it easier to understand the content of the text as a whole (Idol, 1987).

Recognizing that the reading comprehension of eighth-grade students at SMP Negeri 1 Rengel remains below optimal levels, the researchers felt the need to explore a more effective solution. Two interesting techniques to compare are herringbone and story mapping, both of which are believed to be able to help students understand reading better. Therefore, the objective of this study is to determine whether employing these two techniques results in a significant effect on improvement in students' reading comprehension.

## RESEARCH METHODOLOGY

This study applied a quantitative method with a quasi-experimental design, which involved several variables under study. The unbound variables consisted of the herringbone approach (X1) and the story mapping approach (X2), while the bound variable focused on students' reading ability. In this study, two different comparative groups were formed, each undergoing different treatments. The intervention for this study was carried out in six sessions, including a pre-test and post-test. The first group received a treatment that utilized the herringbone and story mapping techniques to improve students' comprehension of narrative texts.

**Table 1. Research Design**

Groups	Pre-test	Treatment	Post-test
1	A	X <sub>1</sub>	A
2	A	X <sub>2</sub>	A

Notes:

A: Students' reading comprehension scores in the pre-test and post-test

X<sub>1</sub>: Herringbone technique

X<sub>2</sub>: Story mapping technique

The population for this study consisted of the VIII grade students of SMP Negeri 1 Rengel. The technique of purposive sampling was used to take samples. Purposive

sampling is a non-random sampling process of selecting samples with certain characteristics according to the research objectives. In this study, the researcher asked for recommendations from the English teacher to choose the class. Class VIII-A was selected where the herringbone technique would be applied, while Class VIII-C was where the story mapping technique would be applied. A total of 64 students participated in the study, with 32 students from each class.

The instruments used to collect quantitative data to test the hypothesis include a reading comprehension test, instrument testing, content validity, and reliability testing. The reading comprehension test consisted of 25 multiple-choice questions, with correct answers scored 1, while incorrect answers were scored 0 before being administered to the participants. A test is considered to have reliability if its reliability coefficient is more than 0.60. For the reading test, the reliability coefficient was 0.775, which indicates that the test can be considered reliable.

After the post-test, the information was examined through descriptive and inferential statistical techniques. The descriptive method was utilized to summarize the outcomes of students taught through the herringbone and story mapping technique by calculating the mean, median, mode, and standard deviation. The Shapiro-Wilk test was employed to evaluate the normality of the data. The resulting significance value exceeded 0.05, indicating that the data were normally distributed. Levene's Test confirmed the homogeneity of variances, also with significance values exceeding 0.05. Additionally, a class homogeneity test showed that both groups were equivalent, ensuring that the sample was appropriate for further analysis.

With the data confirmed as normal and homogeneous, further tests were conducted. To measure the improvement in reading comprehension, a paired sample t-test was applied before and after treatment, and an independent sample t-test was employed to evaluate the effectiveness of the herringbone and story mapping techniques. All statistical analyses were carried out using SPSS version 25.

## FINDING AND DISCUSSION

This study focused on examining whether implementing herringbone and story mapping strategies led to a notable variation in students' understanding of reading material. To accomplish this goal, multiple research methods were employed, which included developing assessment instruments for the initial test, facilitating the instructional approach, and performing the final test. The information collected from every phase was then processed and analyzed to obtain the results.

### Descriptive Analysis

**Table 2** Results of the reading comprehension test

Variable Data Statistic	Herringbone		Story Mapping	
	Pre-test	Post-test	Pre-test	Post-test
Mean	44,9	80,4	34,5	64,1
Std. Deviation	13,5	7,4	13,6	7,5
Max score	76	96	68	80
Min score	24	68	16	52

The final results of the reading comprehension evaluation conducted for the group of 32 students taught by the herringbone method showed a lowest score of 68,

a highest score of 96, an average score of 80.4, and a standard deviation of 7.4. In contrast, the final evaluation results for the group of 32 students guided by the story mapping method recorded the lowest score of 52, the highest score of 80, the mean score of 64.1, and the standard deviation of 7.5. These results indicate that students who applied the herringbone technique demonstrated better reading comprehension skills compared to their counterparts who were taught with the story mapping technique.

### The Inferential Statistics Analysis

In this study, the hypotheses were tested through the t-test. All data processing was done using SPSS version 25. However, certain conditions needed to be met before the analysis could be carried out. The data must show normality as well as uniformity of variance. A normality test was performed to evaluate whether the data were consistent with a normal distribution.

**Table 3.** Test of Normality

	Class	Kolmogorov Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Result	Pre-Test Herringbone	.151	32	.062	.940	32	.076
	Post-Test Herringbone	.128	32	.195	.953	32	.171
	Pre-Test Story Mapping	.153	32	.056	.936	32	.058
	Post-Test Story Mapping	.132	32	.171	.958	32	.247

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Table 4.3** Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Result	.001	1	62	.972

Table 4.2 indicates that the normality test conducted by Shapiro-Wilk shows a significance value of more than  $> 0.05$ . Thus, it can be inferred that all group data in this study are normally distributed. Meanwhile, Table 4.3 presents the results of the homogeneity test shows a value of 0.972. The value is higher than 0.05 ( $0.972 > 0.05$ ). This confirms that the data exhibits homogeneous variance.

**Table 4.** Independent sample test results

		Levene Test for Variance Equality		t-test for Equality of Means						
Result		f	Sig.	t	df	Sig (2- tailed)	Mean Differe nces	Std. Error Differ ences	95% Confidence Interval of the difference	
									Lower	Upper
	Equal variances assumed	.005	0.945	9.754	62	.000	19.829 10	2.032 96	15.7652 7	23.8929 2
	Equal variances not assumed				60.6 04	.000	19.829 10	2.032 96	15.7634 1	23.8947 8

According to Table 4.4, the results of the independent sample t-test indicate that the t-value is 9.754, the table value is 1.999, and the significance value (two-tailed) is 0,000. The analysis results show that the t-value is higher than the table value. Furthermore, the table also indicates that the significance level regarding the enhancement of students' reading comprehension in narrative texts in both groups is below 0,05, signifying that there is a difference between the two groups. Therefore, the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted. In other words, after receiving instruction through the herringbone and story mapping techniques, the reading comprehension ability of eighth-grade students at SMP Negeri 1 Rengel showed a significant improvement.

## Discussion

In this study, the researchers utilized two methods, the herringbone technique and the story mapping technique, to find significant differences in students' comprehension of narrative text. Both techniques were applied to improve students' ability to understand the content of narrative texts. Through this research process, we were able to objectively evaluate the difference in reading comprehension levels between students using each technique. The results of the hypothesis analysis showed a significant difference between the group using the herringbone technique and the group using the story mapping technique, which was indicated by the calculated ( $t_{\text{count}} > t_{\text{table}}$ ). This finding indicates that the hypothesis in this study is accepted, which means that the treatment applied through both techniques has a significant effect on students' reading comprehension.

The results of this study are consistent with the opinion of Tierney et.al in Asnita (2012), who stated that the herringbone technique is an effective strategy for helping students identify and organize key information in a text. Therefore, the herringbone technique improved students' reading comprehension in the eighth grade of SMP Negeri 1 Rengel from pre-test to post-test. This indicates that the herringbone technique has a positive impact on students' comprehension. This technique can help students understand texts, especially in narrative texts, more easily. Herringbone technique also directs students to answer six key questions (5W+1H), making it easier for them to find the main idea and understand the relationship between text elements.

Based on the explanation above, it can be concluded that there is a significant difference between the herringbone technique and the story mapping technique in enhancing students' reading comprehension of narrative texts. In teaching reading, the herringbone technique proved to be more effective than the story mapping technique, particularly in narrative text. This technique improved students' ability to identify the main idea, supporting details, and references. The improvement in recognizing the main idea was due to the herringbone structure that guides students through six key questions (5W+1H) that help them systematically locate and summarize the main idea of a reading.

Moreover, although the Story Mapping technique also improved reading comprehension, particularly in terms of plot understanding and character analysis, its overall impact was less significant than that of the Herringbone technique. Story Mapping helped students visualize narrative elements, but some students found it challenging to maintain focus on the central theme and supporting evidence, which are crucial for deeper comprehension.

## CONCLUSION

Based on previous findings, after being taught using the Herringbone and Story Mapping technique, there is a significant difference in students' reading ability outcomes. This result is supported by the t-count, which exceeds the critical t-table value ( $t_{\text{count}} > t_{\text{table}}$ ), suggesting that both methods have a positive effect on students' understanding of narrative texts. However, the Herringbone method has proven to be significantly more beneficial compared to the Story Mapping approach in boosting students' reading comprehension. This is evident from the average score in the Herringbone class, which reached 80.4, while the Story Mapping class scored 64.1. Moreover, the N-gain achieved in the Herringbone class was higher, indicating that this method is more effective in aiding students' text comprehension.

The researchers analyzed the improvement in various reading aspects between the pre-test and post-test. The analysis showed that both classes experienced significant gains in identifying main ideas, recognizing references, and expanding vocabulary. However, in the Herringbone class, the improvements across all these aspects were more pronounced. The Herringbone technique enables students to organize key information from the text more systematically by using a fishbone diagram that highlights the connections between main ideas and supporting details. This visualization helps students to better understand the text structure, thereby strengthening their ability to identify main ideas, recognize references, and enrich their vocabulary.

In conclusion, students taught using the herringbone technique outperformed those taught using story mapping, showing a significant difference in students' reading comprehension. Both techniques positively influence students' reading comprehension, but the herringbone technique is more effective because the gain score in the herringbone class is higher than in the story mapping class.

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