



The Comparative Study of Visual and Auditory Learning Style on Jigsaw Strategy on Students' Reading Comprehension at Junior High School

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Abstract

This study aimed to identify (1) whether there was an effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintonghuta. (2) whether there was different effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintonghuta. The design of this study was mixed design quantitative comparison with quasi - experimental research that aimed to determine whether the relationship between the experimental group and comparison group in reading comprehension, the experimental group is the group that received the treatment. One class from the population was taken as samples by using a purposive-sampling technique. There were 32 students were taken as populations from class IX - 1. The class will be taught by Jigsaw strategy to know the reading comprehension achievement then compared between the auditory and visual learning style. The results of this study were (1) there was different post-test score between auditory and visual class where the visual class had higher score (71,25) than the auditory class (67,00) after being taught using jigsaw strategy. The result of the paired sample t-test showed that the values of sig (2-tailed) was $0,000 < 0,050$ which means that there was significant difference between the Pre-test and Post-test and it can be concluded that there was mean difference between the pre-test and the post-test of reading comprehension score of visual and auditory learning style after taught using jigsaw strategy. (2) Based on the ANCOVA test it was found that the value of level of significance of learning style was 0.120 and the value of level of Jigsaw strategy significance level was 0,162. It can be said that there was no significance effect of jigsaw strategy on students' reading comprehension of auditory and visual and auditory Learning Style at SMP Negeri 3 Lintonghuta.

Keywords: *Jigsaw Strategy, Learning Styles, Reading Comprehension.*

Introduction

Language is a methodical means of communication based on the utilization of sounds or conventional symbols. This is the language we all use to communicate and

express ourselves. It is also a system that conveys ideas and emotions through sounds, gestures, symbols, or signs. Certain people use language, which is a written or spoken method of combining words to create meaning.(Hadi et al., 2021). In this age of globalization, English has become the medium of communication in both local and global contexts. As a result, there is a demand for speakers who can use English effectively in every country. English is called the International Language and is also the second language of many countries around the world. In Indonesia, English is considered a foreign language because it is studied in an environment where it is not the primary means for daily interaction and use (Safari & Fitriati, 2016)

Reading is the process of actively comprehending written text, which involves extracting the required information from the text as efficiently as possible. Reading has two modes. communicating between readers and writers through written language or symbols, which need interpretation and comprehension. One of the reading comprehensions parts. Reading requires imagination to draw symbols or words to make them easier to understand. However, it is not easy for students to acquire reading skills, because it takes reading as the main goal of English or English learning. Therefore, reading is not a simple process. It requires cooperation between the eyes and brain, and mastering reading skills requires regular exercise, because acquiring a skill requires more exercise and making it a habit of our daily activities. Because reading is a complicated process, we need to concentrate so that it is easier to understand the symbols or words of the text (Hadi et al., 2021).

Every student has different ways to get information from the learning process. The selections made by students during the learning process define their learning style. According to (Saadi, 2012), "if students understand their own learning style, their academic performance will improve," the learning style begins with the student's learning process. It plays a significant role and influences students' reading performance because their learning style is related to the way they acquire and understand information. Students will learn easily due to their individual learning styles. According to (Gholami & Bagheri, 2013) "learning style is the easiest way for students to accumulate, assemble, and process the knowledge they obtain in their studies". Students' learning styles can be divided into Visual, Auditory, and Kinesthetic (VAK) three categories according to the brain's ability to absorb, transmit, and communicate information. These categories do not assign each student only one particular learning style; rather, these categories serve as a guide to understanding which learning style a student utilizes most frequently.

In the learning process, the teacher is still difficult to identify the learning styles possessed by students. Because not all students are easy to show their learning style, even many students are confused to identify their own learning style. Learning styles have an important role in the learning process. When the teacher understands the student's learning style, it is easier for the teacher to carry out the learning process. Besides, teachers must use various methods to provide opportunities for students so that they can more easily understand the subject matter using their learning styles and help them improve their reading abilities.

In this case, the researcher just focused on two of learning styles to be researched, those are visual and auditory learning styles. Visual learning style is a learning style where the learners are more likely get information from what they read than what they heard. Visual learners learn best by seeing illustration. They are likely to get it something best when it is clarified employing a graph, film or picture. Students learn well by looking at values and the importance of information or material presented by the teacher in class. They will learn it if they feel interested. On the contrary, they will not learn it if the material is not interesting. Auditory learners on the other hand learn best through oral language format. They are mostly using audios and lectures as auditory input because they understand information through speed, emphasis, and pitch. Reading out loud in the

classroom also helps them to gain information. They also learn better from interviews, discussions, and storytelling.

Jigsaw Strategy is a type of cooperative learning and actively encourages students to help each other in the mastery subject matter to get maximum achievement. This is a cooperative learning Strategy that reduces racial conflict among school children, promotes better learning, improves student motivation, and increases enjoyment of the learning experience.(Nurbianta & Dahlia, 2018). In this learning method there are stages in its implementation. Teacher act as facilitator who direct and motivate students to learn independently and foster a sense of responsibility and students will be pleased to discuss about English in the group. They can interact with peers and teachers as well as mentors. In the method regular or traditional learning teacher become center of all activity in the class. Otherwise, in jigsaw method, although teachers still control rules, they are no longer the center of classroom activity. Motivation peers can be used effectively in class to improve both students' cognitive learning and affective growth of students. One of the biggest challenges facing teachers is to motivate students. Teachers tend to use competencies to motivate students and often ignore their strategy in which there is cooperation and motivation of peers that can be used to help students focus to academic achievement.

According to the author's observations while she was working as a teacher at SMP Negeri 3 Lintongnihuta, some students have low ability to master English, particularly in terms of their capacity for reading comprehension. This circumstance arises as a result of the fact that the students have a lower level of mastery over vocabulary, grammar, and particularly tenses. As a result, it is difficult for them to understand the kind of text being read and to understand the primary idea of the text. In addition to this, the students exhibit a lackluster interest in learning English as a subject. The kids' perception that learning English is challenging was the root cause of this problem. And the most major problem was that the teacher did not use a range of instructional methods, which caused the students to lose interest in reading and difficulty understanding the material. To make the teaching process exciting and to achieve the goal of the teaching-learning process, the instructor must employ a unique Strategy, strategy, and method. The objective of its use is to facilitate the students' learning and comprehension of the lesson. In this instance, the researcher wishes to employ the strategy.

In jigsaw method, the classes are divided into small groups, many members of the group coinciding with the number of problems has to offer teachers, these groups are called to a home group. Each member of the home group was given a different problem, but each home group were given the same question in accordance with the indicators. With a certain time limit of each member of the discussion group completed the problem individually. A home group will split and form a new group that brings the same issues, the group is called expert group. In this group they are talking to the same perception of their answers. After finished, they returned to the home group and its members must socialize the results/answers from the experts through presentations per group. Discussion with jigsaw method is a development of innovative and cooperative learning in which students are very big role. Based on the background of the problem the researcher tries to conduct a study entitled **"The Comparative Study of Visual and Auditory Learning Style on Jigsaw Strategy on Students' Reading Comprehension at SMP Negeri 3 Lintongnihuta"**

Based on the phenomena above, the researcher deals with one research problems: Is there any effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintongnihuta?. Is the any different effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintongnihuta?

Method

The research technique was the research method. The design of this study was mixed design quantitative comparison with quasi - experimental research that aims to determine whether the relationship between the experimental group and comparison group in reading comprehension, the experimental group was the group that receives the treatment. This research was conducted at SMP Negeri 3 Lintongnihuta which was located at Jln. Jalan Gereja-Nagasaribu V, Kecamatan Lintongnihuta Kabupaten Humbang Hasundutan Provinsi Sumatera Utara. This research was conducted from January to March 2023. The populations of this research were the ninth graders of SMP Negeri 3 Lintongnihuta. There were 7 classes in the ninth graders of SMP Negeri 3 Lintongnihuta. So the researcher used 7 classes as a population. One class from the population was taken as samples of the research by using a purposive-sampling technique. There were 32 students were taken as populations from class IX - 1. The class was taught by Jigsaw strategy to know the reading comprehension achievement then compared between the auditory and visual learning style. In research instrument researcher using Questionnaire and test (pre-test, Post-test, Validity and reliability). In collecting the data, the researcher used tests for the-both classes (auditory and visual group classes.) The objective of the test that was given as the research instrument to collect data about the students' reading comprehension taught by jigsaw strategy. In analysis of the data in this study, the researcher analyzed the data by using an independent t-Test by using SPSS 25.0. Independent sample t-Test was used in this study to know whether there are significant differences between the auditory learning style and visual learning style group after given treatment.

Findings

The data of this study were gathered during the research process. The results were obtained through the Questionnaire of students' learning style, which examined the students' learning styles namely visual and auditory Learning Style. Using a multiple-choice reading comprehension test, the reading comprehension achievement of the students of both learning style was measured. There were 20 questions of multiple choice used to determine the students' level of reading comprehension. There were 32 students of grade IX-1 of SMP Negeri 3 Lintongnihuta were given the pre-test and post-test.

Validity Test Result

The research's validity was determined by measuring the correlation between the value of r from each participant's response and the value of r table. The value of r table for $N = 32 - 2 = 30$ at the 5% significance level was 0.349. Each item was deemed legitimate if the r value was greater than the r table at the 5% significance level. The students' learning style Questionnaire's validity was evaluated as indicated below:

Table 1. Validity Test of Auditory Questionnaire

Statements	R Value	R table	Criteria
1	0.687	0,349	Valid
2	0.560	0,349	Valid
3	0.540	0,349	Valid
4	0.342	0,349	Not valid
5	0.581	0,349	Valid
6	0.715	0,349	Valid
7	0.344	0,349	Valid
8	0.604	0,349	Valid

9	0.530	0,349	Valid
10	0.682	0,349	Valid
11	0.576	0,349	Valid
12	0.636	0,349	Valid

From the table 4.1 above it can be seen that the validity test which was done by using SPSS 25,00 software, it showed that from the 12 items of auditory learning style Questionnaire 11 items were valid because the value of R value of the items was bigger than 0,05 or 5%. Item number 4 was not valid so it did not use as the item of the questionnaire.

Description of The Learning Style Test

The findings described below were the results of students' learning style which were gained from the questionnaire. This study tried to find out the students' learning style as mentioned in the research question before. To collect the data, researcher used questionnaire given to the respondents which were from grade IX-1 of SMP Negeri 3 Lintongnihuta. After distributing the questionnaire to the respondents, researcher acquired data listed below. To make easy in scoring in questionnaire, the all alternative options of frequency had rank as follows:

Table 2. Category of Students' Learning Style

No.	Score	Frequency	Category	%
1	3,00 – 5,00	20	Auditory	62,50
2	0,00 – 2,99	12	Vusual	37,50
	Total	32		100

The table above indicated there were 20 or 62,50% students acquired the score of 3,00 – 5,00 which means that 20 students were categorized in to Auditory Learning Style and 12 students or 37,50% students were categorized in to Visual with the score Of 0,00 – 2,99. The following were the group of Auditory and Visual Learning Style based on the personality test.

Table 3. Group of Auditory and Visual Learning Style

No	Code	Score	Category
1	S1	3.42	Auditory
2	S2	2.67	Visual
3	S3	2.75	Visual
4	S4	3.08	Auditory
5	S5	3.00	Auditory
6	S6	2.08	Visual
7	S7	3.58	Auditory
8	S8	3.75	Auditory
9	S9	2.25	Visual
10	S10	2.92	Visual
11	S11	2.58	Visual
12	S12	3.00	Auditory
13	S13	3.92	Auditory

14	S14	3.17	Auditory
15	S15	3.58	Auditory
16	S16	2.33	Visual
17	S17	2.42	Visual
18	S18	3.58	Auditory
19	S19	3.67	Auditory
20	S20	3.67	Auditory
21	S21	2.58	Visual
22	S22	2.17	Visual
23	S23	2.25	Visual
24	S24	3.42	Auditory
25	S25	3.50	Auditory
26	S26	3.58	Auditory
27	S27	4.08	Auditory
28	S28	2.67	Visual
29	S29	3.50	Auditory
30	S30	3.25	Auditory
31	S31	3.83	Auditory
32	S32	3.42	Auditory

From the table above, it indicated that the auditory learning style were dominant where there were 20 students or 62,50% from the total students.

The Reading Comprehension Achievement of Students' Learning Style (Auditory and Visual) Taught by Jigsaw Strategy.

The next variable was students' achievement in reading comprehension taught by jigsaw strategy. These data were acquired by holding a written test of reading comprehension. The instrument of the test was taken from the final test. There were 20 questions of multiple choice. The data that were collected as follow:

Table 4. The Reading Comprehension Score of Auditory

No.	Student. No	Learning Style	Score	
			Pre-Test	Post-Test
1	S1	Auditory	60	65
2	S4	Auditory	55	75
3	S5	Auditory	20	65
4	S7	Auditory	65	50
5	S8	Auditory	70	75
6	S12	Auditory	50	55
7	S13	Auditory	75	75
8	S14	Auditory	60	70
9	S15	Auditory	45	55
10	S18	Auditory	45	55
11	S19	Auditory	60	65
12	S20	Auditory	75	85

13	S24	Auditory	60	70
14	S25	Auditory	80	90
15	S26	Auditory	45	45
16	S27	Auditory	45	75
17	S29	Auditory	65	75
18	S30	Auditory	60	60
19	S31	Auditory	70	75
20	S32	Auditory	25	60
Total			1130	1340
Mean			56.50	67.00

The data above are the pre-test and post-test scores of reading comprehension achievement of auditory group. The post-test was given in the last meeting after the treatment. In the pre-test the lowest score was 25 and 55 in the post-test and the highest score of the pre-test was 80 and the post-test was 85. Meanwhile, the mean score of the pre-test was 56,50 and the post-test mean score was 67,00. Therefore, it can be seen that there was improvement score after the given the treatment or taught by jigsaw strategy for the auditory students. To know whether there was different between the pre-test and post-test score of the auditory class the T-test was conducted.

Table 5. The Reading Comprehension Score of Visual

No.	Student. No	Learning Style	Score	
			Pre-Test	Post-Test
1	S2	Visual	60	60
2	S3	Visual	55	60
3	S6	Visual	75	80
4	S9	Visual	45	65
5	S10	Visual	50	75
6	S11	Visual	70	70
7	S16	Visual	60	80
8	S17	Visual	55	80
9	S21	Visual	65	70
10	S22	Visual	55	70
11	S23	Visual	60	60
12	S28	Visual	70	85
Total			720	855
Mean			60	71.25

From the data above, it can be said that the result of visual students' reading comprehension achievement were improved after taught by jigsaw strategy. It can be seen from the different score of pre-test and post-test where the mean score of pre-Test was 60,00 while the mean score of the post-test was 71,25.

In the pre-test the lowest score was 45 and 60 in the post-test and the highest score of the pre-test was 75 and the post-test was 85.

Table 6. The Post-test Score of Reading Achievement of

Auditory and Visual Class

Variables	Pre-test Score	Post-test Score	Score Difference
Auditory	56.50	67.00	10,50
Visual	60,00	71,25	11,25

From the table above, it can be seen that there was different post-test score between auditory and visual class where the visual class had higher score (71,25) than the auditory class (67,00) after being taught using jigsaw strategy. In other words, it can be said that visual learning style students had better achievement in reading comprehension than the auditory ones when they were taught by using jigsaw strategy. To know whether there was different between the pre-test and post-test score of the auditory class the T-test was conducted.

Test of Normality

The test of normality is aimed to find out whether the distribution requirement is normal or not. In this research, the data was calculated by using the Kolmogorov-Smirnov test and was carried out by using the SPSS program version 25.00 for windows. Theoretically, the data distribution is said to be normal if the p-value is higher than 0.05. If it is below 0.05, the data is significantly deviated from a normal distribution.

Table 7. The Results of the Normality Test of Students' Pre-test and Post-test of Auditory Class

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test Auditory	.188	20	.062	.930	20	.151
Post-test Auditory	.154	20	.200*	.962	20	.595
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Based on the table above, it can be seen that the significance value obtained for the pre-test of auditory class was 0.062 and the value of obtained for the post-test was 0,200. Both of those significance values were higher than the significance level of 0.05. The result showed that the data of the pre-test and post-test of the auditory group were normally distributed.

Table 8. The Results of the Normality Test of Students' Pre-test and Post-test of Visual Class

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test Visual	.167	12	.200*	.965	12	.855
Post-test Visual	.173	12	.200*	.907	12	.197
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Based on the table above, it can be seen that the significance value obtained for the pre-test of visual class was 0.200 and the value of obtained for the post-test was 0,200. Both of those significance values were higher than the significance level of 0.05. The result showed that the data of the pre-test and post-test of the visual class were normal distributed.

Test of Homogeneity

The homogeneity test is applied to know whether the sample have the homogenous variances or not. The test was done before and after the treatment. The analysis technique which was employed in this study was the Levene test. This test was carried out by using the SPSS program version 25.00 for windows. Theoretically, the sample of variances can be considered homogenous if the significance value is more than 0.05.

Table 9. The Results of the Homogeneity Test of Students' Pre-test and Post-test of Auditory and Visual Class

Variables	Levene Statistic	df1	df2	Sig.	Interpretation
Pre-test Auditory and Visual Class	3.705	1	32	.063	Homogeneous
Post-test Auditory and Visual Class	1.116	1	30	.299	Homogeneous

Based on the table above it showed that the values of p of the pre-test of auditory and visual classes was 0,063 higher than 0,05, moreover the values of p of post-test of auditory and visual class was 0,299 higher than 0.05. It can be said that the data distributions of both the pre-test and post-test are homogenous. The print out of the computation is in Appendix 3.

The Hypothesis Testing

The hypothesis testing was aimed to find out whether or not (1) there was any effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintongnihuta and (2) There was significant different effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintongnihuta

To answer the first problem, question the paired sample t-test was conducted to determine whether there was mean difference between the pre-test and the post-test of reading comprehension score of visual and auditory learning style after taught using jigsaw strategy. The following was the result of the paired sample t-test:

Table 10. The Results of Paired Samples Test

	Paired Differences				t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower			

Pair 1	Pre-Test - Post-Test	-9.84375	11.6732 7	2.06356	- 14.052 41	- 5.6350 9	- 4.77 0	31	.000
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Based on the table above it showed that the values of sig (2-tailed) was 0,000 < 0,050 which means that there was significant different between the Pre-tset and Post-test and it can be concluded that there was mean difference between the pre-test and the post-test of reading comprehension score of visual and auditory learning style after taught using jigsaw strategy.

To answer the second problem, question the ANCOVA test was applied. Because the scores of both the pre-test and the post-test were different. In this case, the pre-test was used as the covariate. Theoretically, the hypothesis was accepted if the value level of significance was lower than 0.05. The result of the ANCOVA was presented below. The printout of the computation is in appendix 3.

Table 11. The Result of Ancova Testing

Tests of Between-Subjects Effects					
Dependent Variable: Reading Comprehension					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	459.652 ^a	2	229.826	1.285	.292
Intercept	118.066	1	118.066	.660	.423
Jigsaw Strategy	367.777	1	367.777	2.056	.162
Learning Style	458.994	1	458.994	2.566	.120
Error	5187.223	29	178.870		
Total	112600.000	32			
Corrected Total	5646.875	31			

a. R Squared = .081 (Adjusted R Squared = .018)

Based on the table, the value of level of significance of learning style was 0.120 and the value of level of jigsaw strategy significance level was 0,162. From the data it can be said that there was no significance effect of jigsaw strategy on students' reading comprehension of auditory and visual, Then the hypothesis can be stated that the alternative hypothesis (Ha) was rejected and the null hypothesis (Ho) was accepted. In other words, there was no different effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintonghigura. This findings had answered the problem questions in chapter one.

Discussion

The aim of this study was to find out whether there was different effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintonghigura. Based on the findings of the research it can be said that there was no different effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintonghigura The conclusions of the result of research can be discussed as follow.

First, from the pre-test and post-test result of the auditory group can be gathered

two findings. In the pre-test the lowest score was 25 and 55 in the post-test and the highest score of the pre-test was 80 and the post-test was 85. Meanwhile, the mean score of the pre-test was 56,50 and the post-test mean score was 67,00. Therefore, it can be seen that there was improvement score after the given the treatment or taught by jigsaw strategy for the auditory students. The mean of auditory group and the mean score of the visual group.

Second, based on the result of the pre-test and the post-test of visual group It can be seen that there was different score of pre-test and post-test where the mean score of pre-test was 60,00 while the mean score of the post-test was 71,25. In the pre-test the lowest score was 45 and 60 in the post-test and the highest score of the pre-test was 75 and the post-test was 85.

From the result of the paired sample t-test it was also found that the values of sig (2-tailed) was $0,000 < 0,050$ which means that there was significant different between the Pre-test and Post-test and it can be concluded that there was mean difference between the pre-test and the post-test of reading comprehension score of visual and auditory learning style after taught using jigsaw strategy.

Third, based on the results of reading comprehension achievement of auditory and visual groups it can be seen that there was different post-test score between auditory and visual class where the visual class had higher score (71,25) than the auditory class (67,00) after being taught using jigsaw strategy. In other words, it can be said that visual learning style students had better achievement in reading comprehension than the auditory ones when they were taught by using jigsaw strategy.

This findings supported by (Fithrotunnisa, 2015) which was said in her findings research that visual learning style was the best way to gets easier comprehension reading material.

The last finding was that the value of level of significance of learning style was 0.120 and the value of level of Jigsaw strategy significance level was 0,162. From the data it can be said that there was no significance effect of jigsaw strategy on students' reading comprehension of auditory and visual and it can be said that there was no different effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintonghuta

This findings was supported by (Putri Wulung, 2023) which was said that there was no significant effect of visual and auditory learning style on student's reading comprehension.

According to the result of research, it can be concluded that each student has a dominant learning style. It is based on the best way of themselves easier to comprehend or accepting the information. Then, the dominant students' learning style might different in the world.

Analyzing the influence of students' learning style towards their reading comprehension achievement, the result was there were no influence of students' auditory and visual learning style towards their reading comprehension achievement, however, the students' visual learning style on their English achievement in reading skill had higher score than the auditory ones.

Conclusion

Based on the results and discussion described in the previous chapter, it can be concluded that: **1)** From the data analysis it was found that there was different post-test score between auditory and visual class where the visual class had higher score (71,25) than the auditory class (67,00) after being taught using jigsaw strategy. In other words, it can be said that visual learning style students had better achievement in reading comprehension than the auditory ones when they were taught by using jigsaw strategy. Based on the result of the paired sample t-test it showed that the values of sig (2-tailed) was $0,000 < 0,050$

which means that there was significant different between the Pre-test and Post-test and it can be concluded that there was mean difference between the pre-test and the post-test of reading comprehension score of visual and auditory learning style after taught using jigsaw strategy. **2)** Based on the ANCOVA test it was found that the value of level of significance of learning style was 0.120 and the value of level of jigsaw strategy significance level was 0,162. From the data it can be said that there was no significance effect of jigsaw strategy on students' reading comprehension of auditory and visual, Then the hypothesis can be stated that the alternative hypothesis (Ha) was rejected and the null hypothesis (Ho) was accepted. In other words, there was no different effect of using Jigsaw Strategy on Students' reading Comprehension of visual and auditory Learning Style at SMP Negeri 3 Lintonghuhuta.

References

- Abbas, K.-D. A. (2021). *Factors Influencing Students Reading Comprehension Difficulties Amidst The Use Of Modular Distance Learning Approach In Mindanao State University Sulu – Senior High School*. *Open Access Indonesia Journal of Social Sciences*, 4(2), 471–493. <https://doi.org/10.37275/oaijss.v4i2.78>
- Adelia, A., & Darmawan, D. (2021). *The Use Of Listen Read Discuss (LRD) Strategy To Improve Student's Reading Comprehension*. *JlIP - Jurnal Ilmiah Ilmu Pendidikan*, 4(7), 588–592. <https://doi.org/10.54371/jiip.v4i7.318>
- Aronson. (2008). *The methodology of Jigsaw procedure in Instructing reading understanding*. <http://www.nepository.com/>
- Ary, D., Jacobs, L. C., Razavieh, A., & Ary, D. (2010). *Introduction to research in education (8th ed)*. Wadsworth.
- Berlin, A. W., Apriliawati, R., & Rezeki, Y. S. (2022). *Developing E-Module of Islamic Reading Text Materials*. *Journal of Foreign Language Teaching and Learning*, 7(1), 24–40. <https://doi.org/10.18196/ftl.v7i1.13210>
- Bobbi DePorter. (2000). *Quantum Teaching*. PT Mizan Publika.
- Brown, H. D. (2006). *Language assessment: Principles and classroom practices (Nachdr.)*. Longman.
- Brown, H.D. (2001). *Teaching by Principles: And Interactive Approach to Language Pedagogy*. A Pearson Education Company.
- Dumlupınar Üniversitesi, & Başaran, M. (2013). *Reading Fluency as an Indicator of Reading Comprehension*. *Educational Sciences: Theory & Practice*, 1–14. <https://doi.org/10.12738/estp.2013.4.1922>
- Efendi, M. A. (2021). *The Effectiveness of Using Jigsaw in Teaching Reading Comprehension across Different Personality*. 1(1).
- Fithrotunnisa. (2015). *The Comparative Analysis Students Learning Style on Their Achievement in Reading Skill; A Survey Study at the Second Grade of Madrasah Tsanawiyah (MTs) Muhammadiyah I Ciputat*. University Syarif Hidayatullah Jakarta.
- Gholami, S., & Bagheri, M. S. (2013). *Relationship between VAK Learning Styles and Problem Solving Styles regarding Gender and Students' Fields of Study*. *Journal of Language Teaching and Research*, 4(4), 700–706. <https://doi.org/10.4304/jltr.4.4.700-706>
- Hadi, M. S., Izzah, L., & Hidayat, M. N. (2021). *The Comparative Study of Students' Learning Style on Their Achievement in Reading Skill*. 9(2), 10.
- Hammer, Jeremy. (2001). *How to Teach English*. Pearson Education Limited.

- Husmann, P. R., & O'Loughlin, V. D. (2019). Another Nail in the Coffin for Learning Styles? Disparities among Undergraduate Anatomy Students' Study Strategies, Class Performance, and Reported VARK Learning Styles: Study Strategies, Learning Styles, Anatomy Performance. *Anatomical Sciences Education*, 12(1), 6–19. <https://doi.org/10.1002/ase.1777>
- Kade, A., Degeng, I. N. S., & Ali, M. N. (2019). Effect of Jigsaw Strategy and Learning Style to Conceptual Understanding on Senior High School Students. *International Journal of Emerging Technologies in Learning (IJET)*, 14(19), 4. <https://doi.org/10.3991/ijet.v14i19.11592>
- Kusumamastuti, A., Khoiron, A. M., & Ahmadi, T. A. (2020). *Metode Penelitian Kuantitatif*. CV Budi Utama.
- Mahmudah, K. (2017). Using Assesmsnt of Reading Test. Analysis of Reading Comprehension Problems toward the Ninth Graders. *English Language and Literature International Conference (ELLiC)*, 1(1). <file:///C:/Users/hp/Downloads/2436-5191-1-PB.pdf>
- Marpaung, F. D. N., & Rosmen, R. (2022). Developing Reading E-Module Based on Langkat Sultanate History for English Department Study of STKIP Al-Maksum Langkat. *JiIP - Jurnal Ilmiah Ilmu Pendidikan*, 5(10), 4295–4301. <https://doi.org/10.54371/jiip.v5i10.988>
- Mengduo, Q., & Xiaoling, J. (2010). Jigsaw Strategy as a Cooperative Learning Technique: Focusing on the Language Learners.
- Muhammad Adib Efendi. (2021). The Effectiveness of Using Jigsaw in Teaching Reading Comprehension across Different Personality. *ETJaR*, 1(1).
- Munir, S., Emzir, E., & Rahmat, A. (2019). The Effect of Teaching Methods and Learning Styles on Students' English Achievement (An Experimental Study at Junior High School 1 Pasangkayu). *JETL (Journal Of Education, Teaching and Learning)*, 2(2), 233. <https://doi.org/10.26737/jetl.v2i2.292>
- Nurbianta, N., & Dahlia, H. (2018). The Effectiveness of Jigsaw Method in Improving Students Reading Comprehension. *ETERNAL (English Teaching Journal)*, 9(1). <https://doi.org/10.26877/eternal.v9i1.2416>
- Putri Wulung. (2023). The Effect of Visual and Auditory Learning Style on Student's Reading Comprehension. *UIN Sultan Maulana Hasanuddin Banten*.
- Raynaldo, M. T., & Panjaitan, N. B. (2022). Meta Analysis on The Correlation Between Listen-Read-Discuss (L-R-D) and Reading Comprehension. *JiIP - Jurnal Ilmiah Ilmu Pendidikan*, 5(11), 5264–5270. <https://doi.org/10.54371/jiip.v5i11.1257>
- Richards, J. C., & Renandya, W. A. (2002). *Methodology in Language Teaching: An Anthology of Current Practice*. Cambridge University Press.
- Risa Destriani, Riduan, Setiyadi, B., Universitas Lampung, Huzairin, H., & Universitas Lampung. (2021). The comparative study in reading comprehension achievement on students with visual, auditory, and kinesthetic learning styles. *U-Jet: Unila Journal of English Language Teaching*, 10(2). <https://doi.org/10.23960/UJET.v10.i2.202112>
- Saadi, I. A. (2012). An examination of the learning styles of Saudi preparatory school students who are high or low in reading achievement. *Victoria University Melbourne, Australia*, 390.
- Zalukhu, A. ., Silitonga, H. ., Manurung, L. W. ., Hia, M. G. ., & Nainggolan, D. C. A. . (2022). Improving Students' Reading Comprehension Through (RAP) Read, Ask, And

- Put Strategy. *Jurnal Pendidikan Dan Konseling (JPDK)*, 4(5), 4080–4084. <https://doi.org/10.31004/jpdk.v4i5.7180>
- Safari, M. U. K., & Fitriati, S. W. (2016). *Learning Strategies Used by Learners with Different Speaking Performance for Developing Speaking Ability*. 15.
- Sitohang, I., & Purnawarman, P. (2015). *THE EFFECTIVENESS OF JIGSAW STRATEGY TO IMPROVE STUDENTS' SKILL IN WRITING A RECOUNT TEXT*. 3(2).
- Sugiyono. (2012). *Statistika Untuk Penelitian*. Alfabeta.
- Susanti, Y. P., & Subekti, A. S. (2020). *Jigsaw Strategy for Cooperative Learning in an English Reading Class: Teacher's and Students' Beliefs*. *Pedagogy : Journal of English Language Teaching*, 8(2), 102. <https://doi.org/10.32332/pedagogy.v8i2.2274>
- Tawali. (2020). *The Effect Of Sqrc (State Question Read Conclude) Technique Towards Students' Reading Comprehension*. *Jurnal Ilmu Sosial Dan Pendidikan*, 4(3). <http://dx.doi.org/10.58258/jisip.v4i3.1473>
- Zalukhu, . . A. ., Hutasoit, D. H., & Napitupulu, F. D. . (2022). *The effectiveness of using Personal Vocabulary Notes To improve students' Reading Comprehension of Eleven Grade at SMA Negeri 13 Medan*. *Jurnal Pendidikan Dan Konseling (JPDK)*, 4(4), 5949–5955. <https://doi.org/10.31004/jpdk.v4i4.6419>
- Wikandari, Y. D. (2022a). *The Influence of Learning Styles Toward Students Reading Achievement at SMP Quran An Nawawy Mojokerto in the Academic Year of 2020/2021*. *Journal of Education*, 5(1). <https://doi.org/10.33059/ellite.v5i02>
- Wikandari, Y. D. (2022b). *THE INFLUENCE OF LEARNING STYLES TOWARD STUDENTS READING ACHIEVEMENT AT SMP QURAN AN NAWAWY MOJOKERTO IN THE ACADEMIC YEAR OF 2020/2021*. *Journal of Education*, 5.
- Wutthisingchai, S., & Stopps, P. J. (2021). *An Analysis of Factors Affecting the English Reading Comprehension of Mattayomsuksa 5 Students in Amphur Mueang, Lampang Province*.