Journal of Authentic Research
https://journal-center.litpam.com/index.php/jar/index

August 2025 Vol. 4, No. Special Issue
e-ISSN: 2828-3724
pp. 1043-1054

The Effectiveness of Interactive Jigsaw on Students' Reading Ability and Motivation

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Received: June 2024; Revised: July 2024; Published: July 2024

Abstract

This study aims to examine the effectiveness of the Interactive Jigsaw Method in improving reading skills and learning motivation among students at Baiturrahman Mahmudi Bebuak Islamic Junior High School. The main problem faced is the low reading ability and motivation of students. The Interactive Jigsaw Method was chosen as a solution because it encourages cooperative learning. This study uses a quantitative. The pre-test results showed that students' reading ability were very low, with 50% of students in the low category and the rest in the poor and failing categories. However, after implementing the Jigsaw Method, there was a significant improvement in the post-test. Of the 34 students, 58.82% achieved the excellent category, 32.35% the good category, and the rest were adequate. Statistical analysis using a paired t-test showed a t-test value of 4.246, well above the critical t-table value (2.032), with a significance level of less than 0.01. This proves that the method is significantly effective in improving reading skills. This method also has a positive impact on student motivation. (80.3%) of students had high motivation, while (14.7%) students had low motivation. These findings confirm that the Interactive Jigsaw Method successfully increased students' motivation to learn reading. It can be concluded that the Interactive Jigsaw Method is significantly effective in improving students' reading ability and learning motivation.

Keywords: *Reading Ability, Jigsaw, Reading Motivations*

How to Cite: Septiani, S., Thohir, L., Saputra, A., & Apgrianto, K. (2025). The Effectiveness of Interactive Jigsaw on Students' Reading Ability and Motivation. *Journal of Authentic Research*, *4*(Special Issue), 1043–1054. https://doi.org/10.36312/jar.v4iSpecial Issue.3329

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INTRODUCTION

English has a strong position in the world of education in Indonesia. This is inevitable because most of the knowledge and technology in various fields are written in English, so mastery of English will pave the way for Indonesians to develop knowledge or disseminate knowledge that is developing in Indonesia (Alfarisy, 2021). In learning English, there are four abilitys that must be mastered, namely listening, speaking, reading, and writing. One of the important abilitys that must be mastered is reading (Brown, 2001 in Ratna et all 2020). English teaching

must be interesting, innovative, and enjoyable for learners at all levels to improve their proficiency in the language (Sujana, 2012).

Reading is a cognitive process whereby a person understands the meaning conveyed by a written text (Widyantara et al, 2022). Reading is a means of acquiring language, communication, and various information and ideas. Reading is one of the language skills that plays an important role for every student (Zebua, 2022). According to Romadhon (2020), reading is a common ability among students in educational activities, and reading is very important for personal and intellectual growth. Reading also has the benefit of helping students learn to express themselves efficiently. However, students' reading abilitys are still low, and this can be seen from their constant struggle to understand reading material effectively. Students should not only be trained in academic tasks such as note-taking, summarizing, retelling, paraphrasing, and evaluating texts, but also in the more important ability of learning how to learn in academic reading.

English education in Indonesia faces significant challenges, one of which is the low level of reading proficiency among students. Reading is a basic ability that serves as a gateway to understanding other subjects and accessing various information. However, many students find it difficult to understand texts, identify main ideas, and analyze information in depth.

In addition to reading ability, motivation to learn is also an important factor that is often overlooked. Teaching methods that tend to be monotonous and teacher-centered make students passive and less enthusiastic. This situation can worsen their reading ability due to a lack of internal drive to interact with the learning material. Problems in the classroom often center on reading ability, where students have difficulty identifying main ideas, have limited vocabulary, struggle to understand meaning, and lack intrinsic motivation to read. This is exacerbated by conventional teaching methods that focus on word pronunciation rather than deeper comprehension strategies, such as drawing conclusions or connecting the text to prior knowledge. This traditional approach results in low student engagement, inadequate vocabulary development, and a lack of motivation. Therefore, innovative approaches such as the jigsaw technique are essential.

There are several factors that can affect reading ability; these factors can come from within and outside the reader. One internal factor is motivation. Everyone has their own internal conditions, which play an important role in daily activities. According to Thohir (2017), motivation is defined as some internal drive that pushes someone to do things in order to achieve something and to achieve success; someone needs to be motivated. This underscores the nuanced nature of the motivational forces that drive or hinder an individual's involvement in reading. It seems that motivation is very important in every activity, including reading. By having motivation, students will have the inner strength that drives them to act, and action is the key to all success. Motivated students usually have a strong desire to achieve goals, as a result of which they will carry out activities intensively and do their best in their efforts to achieve the planned results. Reading motivation emerges as a significant factor for foreign language students, enhancing their effectiveness in reuling, as emphasized by Namazi ea all. (2022). Hattie and Timperley (2007) believe

thatmotivation arising from social interactions within the group can encourage students to work harder to achieve learning objectives.

Another factor considered to influence reading ability is effective reading strategies. One technique that can be used in teaching English reading is cooperative learning. The application of cooperative learning can increase individual motivation to collaborate towards achieving group goals (Asda, 2022). One cooperative learning technique is jigsaw. The jigsaw type of cooperative learning model is a learning model in which students learn in small groups that work together to master the learning material (Slavin, 2019). According to Widana & Septiari, (2021), the jigsaw type of cooperative learning model is a model that emphasizes student cooperation in small groups. Jigsaw is a learning framework specifically developed to facilitate student learning (Ruspandi, 2021). Throug this model, students not only learn for themselves, but are also responsible for understanding and explaining the material that is their responsibility to other group members (Nurhidayah, 2022). According to Maden (2011), the Jigsaw technique can enhance collaborative learning by making each student responsible for teaching part of the material to the group. By using this technique, students are required to master the text, as they are given the opportunity to understand the reading well. (Faisal et al., 2023) revealed that this model can help improve communication, cooperation among students, and understanding of the material in a more comprehensive and better way. According to Meng (2010), students learn teamwork in studying material that has been divided into several parts. Members of each group meet with other groups, discuss their topics, and then return to their groups. This activity can encourage the development of students' critical thinking, not only in terms of their ability to express themselves, but also their ability to communicate. Thus, each student has an important role in the success of their group, creating positive interdependence and individual responsibility (Slavin, 2019) in Novisnti, 2024)

Based on the above explanation, the author will apply the jigsaw technique to improve students' reading ability. It is estimated that by using jigsaw, students can extract information from the text correctly. The author also believes that the jigsaw theory provides students with the opportunity to understand texts more easily. In addition to developing students' abilities, the application of this strategy can also make students more active and more willing to share ideas with other students. Students are expected to be more motivated, and their reading problems will be overcome by using this strategy. The implementation of Interactive Jigsaw at Baiturrahman Mahmudi Bebuak Islamic Junior High School is expected to be the solution. RQ. Is the use of interactive jigsaw effective in improving students' reading ability and their motivation at SMPN Islam Baiturrahman Mahmudi Bebuak?

METHODS

Pre-experimental with one group design does not have a control group to compare with and can find out the results of the treatment more accurately because it can compare the results before and after being given the treatment (Fraenkel et al, 2023 in purnomo et al 2024) Pre-experimental research has one-group pretest–posttest design that consist of three steps: (1) administering a pre-test measuring the dependent variable; (2) applying the experimental treatment (jigsaw) to the subjects; (3) administering a post-test; and last (4) questionnaire. We compared the pre-test and post-test scores to assess any variations resulting from pre-experimental therapy.

Population and Sample

The population of this research is eight grade students of SMP Islam Baiturrahman Mahmudi Bebuak academic year 2023/2024, totaling 66 students. The samples of this study are 34 students of class VIII A at SMP Islam Baiturrahman Mahmudi Bebuak**.**

Instrument

In this research, the researcher uses two research instruments. The researcher uses test and questionnaires as the research instruments. There are two types of tests that are important instruments in quantitative collection, namely pre-test and posttest. The pretest is given at the first meeting, while the post-test is given at the last meeting. Meanwhile, the treatment was given at the third meeting, and the questions on both tests are different. The questionnaire used a closed questionnaire with alternative answers already provided by the researcher for respondents to answer.

Data Collection Methods

Data was collected through pretests, posttests, and questionnaires. This study was conducted over four meetings. Research Implementation

a) First Meeting: At the first meeting, students were given a pretest in the form of reading texts and multiple-choice questions. This exam consists of 20 multiple choice questions taken from the narrative text, with a maximum score of 100. After that, students were divided into groups of 4 to 5 members.

b) Second & Third Meetings: The researcher explained the learning objectives using the Jigsaw technique. Each member of the Jigsaw group was given different sub-materials. Then, students formed expert groups based on the same sub-materials for discussion. After the discussion, each student returned to their original Jigsaw group and shared their understanding of the sub-material they had mastered. Each member was responsible for the success of their group.

c) Fourth Meeting: In the last meeting, students took a post-test with material taken from their discussions during the learning process using the Jigsaw technique. After that, students were asked to fill out a questionnaire prepared by the researcher. This questionnaire is a closed questionnaire with answer options in the form of a scale (strongly agree, agree, disagree, strongly disagree). The questionnaire is printed and distributed directly to students.

The Data Analysis Technique

To After the data collection step which consists of pre-test and post-test, the next step is the researcher analysis the data. In the data analysis, the data collect is calculated by using statistical calculations.

a) Scoring the data

In the testing data step, students are asked to answer all the questions provide on the test sheet. There are 20 questions in one test with a score of 5 points for beach correct answer, and 0 points for each wrong answer. To determine the score for each students, the following formula is use;

Score = Total correct answer x 5

b) Classification of the score

The next step is to classify the scores. Classification of the score is the step of grouping student scores into predetermined categories. In this study, students' scores are classified into several categories, very good, good, enough, less and fail. The interpretation of students‟ score is classified as follow:

a. Score 80-100 categories very good
b. Score 66-79 categories good
c. Score 56-65 categories enough
d. Score 40-55 categories less
e. Score 30-39 categories fall

Questioner is data colletion tool in the form of a list of writtem or oral questions complited by researcher or interviwer with the aim of obtaining answers from respondents in accordance with the research objectives. The questionnaire consisted of 14 items and the item has four options on a scale from 1 to 4. The following is the scale of motivation reading question instrument:

a. Score 4 categories strongly agree
b. Score 3 categories agree
c. Score 2 disagree
d. Score 1 strongly disagree

c) Calculating the Score

After classifying students' scores, research then calculates the scores of the results or the effect of using Jigsaw on students' reading ability and motivation by using the t-test with the help of the SPSS program. Analyzing data by describing the data that have been collected by describing the results of students' pretests and posttests in the application of jigsaw techniques to student reading ability at SMP Islam Baiturrahman Mahmudi Bebuak. For this reason, an average calculation was made to measure the level of student learning outcomes before and after treatments.

d) Reliability and Validity

Validity testing is a test to measure whether a questionnaire or instrument is valid or not. A research instrument is considered valid if the questions in the instrument can reveal what will be measured with the instrument. The validity test in this study was conducted using SPSS. Information on the reliability and

validity of a questionnaire is important, so the measurement of the questionnaire uses appropriate and reliable measuring instruments (Sjamsuddin and Anshari, 2023). In quantitative studies, the accuracy of a study is influenced by the validity and reliability of the measuring instruments used in the study.

e) Hypothesis Testing

The next step is hypothesis testing. Hypothesis testing as follows:

1. If *t-test* ≥ *t-table* at the level of significance. 0.05, Ha "The use of jigsaw is effective in teaching students' reading ability and motivation", is accepted.
2. If *t-test* ≤ *t-table* at significance level 0.05, Ho "The use of interactive jigsaw is not effective in teaching reading and motivation" fails to be rejected.

f) Drawing Conclusions

After the hypothesis testing process, the last step is conclusion drawing. In this last step, the results of the student tests are explain whether or not the use of jigsaw is effective as a teaching medium in reading ability and student motivation.

FINDINGS AND DISCUSSION

In this study, the researchers collected test results and questionnaires as instruments in this study from 34 students of SMP Islam Baiturrahman Mahmudi Bebuak. The researcher will analyse the data that has been obtained from the pre-test, post-test results from one group without control class, namely class VIII A students at SMP Islam Baiturrahman Mahmudi Bebuak. The results of this data analysis can be seen from the comparison of two test results, namely pretest, posttest and questionnaire.

1. Finding From Pretest And Posttest

From the difference between the students' average scores in the pretest and posttest which increased, it shows the provisional results that the use of jigsaw techniques in English lessons is effective in improving students' reading abilitys. Of course, this provisional result cannot be said to be the final result of this study, therefore the researcher must conduct an analysis to the next stage to find out whether the use of jigsaw techniques in English lessons is effective in improving students' reading ability.

a. Table pre-test and post-test

Classification	**score**	**Pre-trest**		**Post-test**	
		Frequency	Persentage (%)	Frequency	Persentage (%)
Very Good	80-100			20	58,82%
Good	66-79			11	32,35%
Enough	56-65			3	8,82%
Less	40-55	17	50%		
Poor	30-39	12	35,29%		
Fail	10-25	5	14,70%		
Total		34	100%	34	

The table above shows the result of 34 students. In the pretest table, before the implementation of the interactive jigsaw technique, most students showed low result.50% of stusents were in the poor category, 35,29% of students wew in the bad category, and 14,30% of students were in the file category. No students achieved the enough category or higher on the pretest. After applaying the interactive jigsaw technique, there was a significant change in students reading abilities. The posttest table shows that 58.82% or 20 of the 30 students achieved the very good category; the remaining 11 students 32.35% achieved the good category. Mno students were in the poor or failed category on the posttest. Next, statistical data analysis using SPSS.

2. Reability and Validity

Table 1. test Validity and Reability

variable	r-value	Validity r-table (5%)	Sig	Reability Cronbach alfa	Status
X1	0,601	0.339	0,00		
X2	0,483	0.339	0,04		
X3	0,500	0.339	0,03		
X4	0,539	0.339	0,01		
X5	0,507	0.339	0,02		
X6	0,566	0.339	0,00	0,791	Reliable
X7	0,498	0.339	0,03		
X8	0,500	0.339	0,03		
X9	0,501	0.339	0,03		
X10	0,536	0.339	0,01		
X11	0,569	0.339	0,00		
X12	0,484	0.339	0,04		
X13	0,604	0.339	0,00		
X14	0,490	0.339	0,03		

The table above shows the validity test results of the questions taken from the reading motivation instrument. The questionnaire was declared valid because the r-value > r-table, and the significance level of the instrument was less than < 0.05. Therefore, it was determined that the research instrument used was valid. The instrument used was also declared reliable because the Cronbach Alpha value resulting from testing the research instrument produced a value of 0.791 > 0.6.

3. Finding From SPSS

a. Test of Normality

Table 2. Test of Normality

One-Sample Kolmogorov-Smirnov Test

			Pretest	Posttest
N			34	34
Normal Parameters[a,b]	Mean		37.21	80.44
	Std. Deviation		10.090	10.966
Most Extreme Differences	Absolute		.119	.163
	Positive		.116	.163
	Negative		-.119	-.082
Test Statistic			.119	.163
Asymp. Sig. (2-tailed)[c]			.200[d]	.022
Monte Carlo Sig. (2-tailed)[e]	Sig.		.248	.022
	99% Confidence Interval	Lower Bound	.237	.018
		Upper Bound	.259	.026

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.
e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Displays the results of the normality test conducted on students' reading ability. Based on the Kolmogorov test table above, the results obtained a significant value of 248, which means that the variable is normally distributed at a sig value > 0.05.

b. T-test

Table 3. T-test

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	56.167	5.917		9.492	<,001
	Pretest	.652	.154	.600	4.246	<,001

a. Dependent Variable: Posttest

Based on the tests conducted, it is know that the significant value for the effect of the jigsaw technique on reading ability is, 0,01<0.05 and the t-test is 4.246>2.032, so it can be concluded that Ha is accepted and Ho is rejected. From the Hypothesis testing above, it is known that the jigsaw technique has an effect on students reading ability.

c. Score of Students' Questionnaire

Table 4. Questionnaire

Category	Interval score	Frequency	Percent	Valid Percent	Cumulative percent
Hight	71-100	29	85.3%	85.3%	100
Medium	41-70				
Low	10-40	5	14.7%	14.7%	100
total		34	100.0	100.0	

In table 4 above, the questionnaire scores can be divided into 3 categories, namely very high, medium, and low. The results showed that out of 31 students, 29 students obtained high scores (80.3%), and 5 people obtained low scores (14.7%). It can be concluded that 29 students obtained high scores, and 5 others obtained low scores.

Discussion

Based on the results of reading ability tests and reading motivation questionnaires, it can be concluded that the Jigsaw technique is effective in improving students' reading abilities and motivation. Reading ability test results: In the pretest, students' reading abilities were very low, with 50% of students in the low category, while the rest were in the poor and fail categories. However, after applying the Jigsaw technique, there was a significant improvement in the posttest. Of the 34 students, 20 students (58.82%) reached the very good category, 11 students (32.35%) were in the good category, and 3 students (8.82%) were in the sufficient category. Statistical analysis proved the effectiveness of the Jigsaw technique. Normality Test: The data on students' reading ability and motivation were normally distributed, as the significance value was 0.248, which was greater than 0.05.

Hypothesis Test (T-test): The results of the hypothesis test showed that the Jigsaw technique effectively improved students' reading ability. This is supported by a t-test of 4.246, which is greater than the t-table value of 2.032, and a sig value of 0.01<0.05. In the reading motivation questionnaire results, after applying the Jigsaw method, there was a high influence of reading motivation on students. Of the 34 students who completed the questionnaire, 29 students (80.3%) scored high, while 5 students (14.7%) scored low. Research shows that the jigsaw model can increase student participation and understanding (Divan et al, 2022).This data shows a clear effect on motivation after students learned using the Jigsaw technique. The application of the Jigsaw Reading Technique showed very positive and significant results. This study proved that this technique is effective in improving the reading ability of students in grade VIII at SMPN 1 Baiturrahman Mahmudi Bebuak, while also supporting the research hypothesis.

Improvement in reading ability: The posttest scores of students taught using the Jigsaw technique showed a significant increase compared to their pretest scores, which was much higher than the increase in the group taught using conventional methods. Similarly, reading motivation: The Jigsaw technique was also proven to have an effect on students' reading motivation. This text quotes Namazi et al (2022), who emphasizes the importance of motivation for students, especially in foreign language learning, because motivation encourages them to strive to achieve their goals. In addition to improving ability and motivation, the Jigsaw technique also trains students' cooperation and responsibility, ensures equal mastery of the material, and trains students to speak and express their opinions. This is in line with Maden's (2011) opinion that the Jigsaw technique can improve collaborative learning because each student is responsible for teaching the material to their group. Huda & Ernaningsih (2023) mentioned that although the Jigsaw model can be effective,its successful implementation is highly dependent on students' ability to collaborate and communicate effectively.

CONCLUSION

Based on the results of the study, it can be concluded that the Jigsaw technique is effective in improving both students' reading ability and motivation to read, as shown by the analysis of pretest and posttest results. In the reading ability test, on the pretest, students' reading abilitys was very low, with 50% of students in the low category and the rest in the poor and fail categories. However, after applying the Jigsaw technique, there was a significant improvement on the post-test. Of the 34 students, 58.82% achieved the very good category, (32.35%) were in the good category, and (8.82%) were in the fair category. Statistical analysis proved the effectiveness of the Jigsaw technique. Normality Test; The data on students' reading ability and motivation were normally distributed, as the significance value was 0.248, which is greater than 0.05. The paired t-test produced a calculated t-test of 4.246, far exceeding the critical t-able of 2.032. In addition, the significance level obtained was less than 0.01, far below the threshold of 0.05. These statistical results support the acceptance of the alternative hypothesis (Ha) and the rejection of the null hypothesis (Ho), confirming that the interactive jigsaw method is indeed effective in teaching reading ability. There was also an effect on students' learning motivation after participating in learning using the interactive jigsaw method. Of the 34 students, 29 students (80.3%) obtained high motivation scores, while only 5 students (14.7%) obtained low scores. From this data, it is clear that it affacts student motivation.

Suggestions

This study, which used the jigsaw technique with a pre-experimental one-group pretest-posttest method, has significant limitations due to the absence of a control group, resulting in limited findings. To overcome this weakness, it is recommended that future studies use a stronger design, such as a quasi-experiment or true experimental design with a control group, and test other variables to gain more comprehensive insights. For teachers, the jigsaw technique can be applied in reading instruction to improve comprehension, foster a sense of responsibility, and provide opportunities for students to collaborate. Meanwhile, students are expected to be able to build good relationships with their classmates in order to share knowledge effectively. Finally, for future researchers, this study provides a great opportunity to develop further research in the same field by improving on existing weaknesses.

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