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A Jigsaw Technique as a Stimulant for Promoting Reading Comprehension among EFL High School Students

(Teknik Jigsaw Sebagai Stimulan untuk Meningkatkan Pemahaman Membaca di Kalangan Siswa SMA EFL)

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Abstract

This research explores the impact of implementing the Jigsaw technique as a cooperative learning strategy on the reading comprehension skills of 10th-grade students studying English as a Foreign Language (EFL) at SMA Negeri 1 Botumoito. The study specifically focuses on students' understanding of report texts, including their ability to identify main ideas, details, vocabulary, references, and inferences. The Jigsaw technique was chosen due to its potential to enhance cooperative learning and engagement among students. The study involved a sample of 60 students over eight weeks. Data were collected through pre-test and post-test assessments, and the results were analyzed using paired samples t-tests. The analysis indicated a statistically significant improvement in students' reading comprehension, with mean pretest scores of 45.55 rising to posttest scores of 74.00. The t-test results ($t = 0.000$, $p < 0.05$) confirmed the hypothesis that the Jigsaw technique positively influences reading comprehension skills. Despite some challenges, such as time constraints and dynamics between academically strong and weak students, the research interventions facilitated a positive learning environment and stimulated students' critical thinking and problem-solving skills. These findings suggest that the Jigsaw technique is an effective strategy for improving reading comprehension in EFL contexts. The study recommends further research to explore the long-term impacts and adaptations of the Jigsaw technique in diverse educational settings.

Abstrak

Penelitian ini mengeksplorasi dampak penerapan teknik Jigsaw sebagai strategi pembelajaran kooperatif terhadap keterampilan pemahaman membaca siswa kelas 10 yang mempelajari Bahasa Inggris sebagai Bahasa Asing (EFL) di SMA Negeri 1 Botumoito. Penelitian ini secara khusus berfokus pada pemahaman siswa terhadap teks laporan, termasuk kemampuan mereka untuk mengidentifikasi ide pokok, detail, kosakata, referensi, dan inferensi. Teknik Jigsaw dipilih karena potensinya untuk meningkatkan pembelajaran kooperatif dan keterlibatan siswa. Penelitian ini melibatkan sampel sebanyak 60 siswa selama periode delapan minggu. Data dikumpulkan melalui penilaian pretest dan posttest, dan hasilnya dianalisis menggunakan uji t sampel berpasangan. Analisis menunjukkan peningkatan yang signifikan secara statistik dalam pemahaman membaca siswa, dengan skor rata-rata pretest sebesar 45,55 meningkat menjadi skor posttest sebesar 74,00. Hasil uji t ($t = 0,000$, $p < 0,05$) mengkonfirmasi hipotesis bahwa teknik Jigsaw berpengaruh positif terhadap keterampilan pemahaman membaca. Meskipun terdapat beberapa tantangan, seperti keterbatasan waktu dan dinamika antara siswa yang akademisnya kuat dan lemah,

intervensi penelitian ini memfasilitasi lingkungan belajar yang positif dan merangsang keterampilan berpikir kritis dan pemecahan masalah siswa. Temuan ini menunjukkan bahwa teknik Jigsaw adalah strategi yang efektif untuk meningkatkan pemahaman membaca dalam konteks EFL. Penelitian ini merekomendasikan penelitian lebih lanjut untuk mengeksplorasi dampak jangka panjang dan adaptasi teknik Jigsaw di berbagai lingkungan pendidikan.

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1. INTRODUCTION

Reading comprehension is described as the capacity to recognize and understand what has been read. Smith (2004) noted that "analyzing comprehension involves the skill of perceiving, evaluating, and utilizing information gained through an interaction between reader and writer." Thus, analyzing comprehension is about understanding the meaning of a passage (Septiana & Aminatun, 2021). Someone who reads something with comprehension can be said to be engaging in reading comprehension. Reading comprehension requires sufficient competencies and abilities to understand the printed text (Salmerón et al., 2018). Numerous issues can make students struggle with comprehending text, such as difficulties related to language understanding, background knowledge, motivation, lack of reading techniques, and the reading process itself (Fitriana, 2018). Chastain (1975) identified several reasons why people may have difficulty understanding or remembering what they have read, such as distractions, difficult vocabulary, or a lack of interest. Therefore, reading for comprehension should be facilitated by using appropriate techniques to help readers better understand the text (Koch & Spörer, 2017).

When students face difficulties in reading comprehension, teachers must be innovative in determining effective learning techniques and strategies. Everything a teacher plans to do in the classroom must be designed to build students' ability to understand increasingly complex texts. This can be achieved through various methods, techniques, and media as part of the strategy outlined in the lesson plan. The selection and use of methods and techniques by teachers significantly affect the learning process and student achievement (Gess-Newsome et al., 2019).

Alfaruqy (2021) suggests that collaborative learning, particularly through methods like the jigsaw technique, enhances students' reading skills by promoting active engagement, communication, and collaboration. However, at SMA Negeri 1 Botumoito, interviews with students on May 23, 2022, revealed challenges in learning English, particularly in understanding texts without dictionaries during exams and lack of engagement in group discussions. Teachers primarily relied on individual instruction, resulting in limited collaborative learning experiences. Observations confirmed students' disengagement during reading tasks and minimal peer interaction. This approach led to below-average English scores and decreased motivation among students.

There is a pressing need for a more interactive and collaborative learning approach, such as the proposed jigsaw method, to address these challenges and enhance students' comprehension and motivation in learning English. The jigsaw method encourages active participation, teamwork, and a deeper understanding of texts (Yuhananik, 2018). Slavin (1995) supports this approach, emphasizing its effectiveness in improving reading comprehension by fostering active student participation.

The jigsaw method provides a stimulus for students, motivating them to learn and improving their reading skills (Pariati, 2018). This method requires students to be active in class, helping them gain detailed information about the text and understand it more easily (Nurbianta & Dahlia, 2018). Teachers also benefit from gaining new knowledge about teaching methods, making the teaching and learning process more interesting and effective. As a result, students' motivation to read increases.

Based on the background of the study, the researcher conducted experimental research titled “A Jigsaw Technique in Cooperative Learning Strategy as a Stimulant for Promoting Reading Comprehension Skills among EFL High School Students.” The problem statement of the research is whether the jigsaw technique can influence the reading comprehension of tenth-grade students at SMA Negeri 1 Botumoito, while the

objective is to determine whether implementing the jigsaw technique as a cooperative learning strategy affects these students' reading comprehension.

2. METHODS

This research employed quantitative methods, specifically experimental research. The study utilized a pre-experimental (non-design) approach, specifically the "one-group pre-test and post-test design." This design involves a single experimental group that undergoes a pre-test (O1), is exposed to a treatment (X), and then undergoes a post-test (O2). There was no comparison or control group.

2.1 Research Context

The research was conducted at SMA Negeri 1 Botumoito, a senior high school located in a suburban area. The school serves a diverse student population, and the tenth-grade classes typically have 25-30 students each. The instructional practices at the school include a mix of traditional and modern teaching methods, with an emphasis on interactive learning.

2.2 Sample Selection

The population for this study comprised all tenth-grade students at SMA Negeri 1 Botumoito, totaling 254 students. Given the constraints of the research scope and the need for a manageable sample size, a purposive sampling technique was employed. Specifically, 24 students from class X-1 were selected as the experimental group based on their identified need for improvement in reading comprehension, as well as recommendations from the English teacher. This targeted approach allowed the researcher to effectively implement the jigsaw technique in the learning process, focusing on a group that would benefit most from the intervention.

2.3 Jigsaw Technique Implementation

The jigsaw technique was implemented over four weeks, with sessions held twice a week during regular English classes. The steps involved included dividing the students into small groups, assigning each group a different segment of the text to read and understand, and then having them teach their segment to their peers. The materials used included selected report texts appropriate for the student's reading level. Each session lasted approximately 45 minutes.

2.4 Measurement Instruments

The study utilized pre-test and post-test assessments to measure reading comprehension skills. The tests consisted of multiple-choice and short-answer questions designed to evaluate students' ability to identify main ideas, details, vocabulary, references, and inferences. The tests were reviewed for content validity by English teachers at the school and piloted with a small group of students to ensure reliability.

2.5 Data Collection Procedure

Data collection involved administering the pre-test to the experimental group before the intervention. Following the four-week intervention period, the post-test was administered. Both tests were conducted under similar conditions to minimize variability. The tests were scored using a standardized rubric, and the results were recorded for analysis.

2.6 Data Analysis

The data were analyzed using paired samples t-tests to compare pre-test and post-test scores. The statistical analysis was conducted using SPSS software. The significance level was set at 0.05 to determine the effectiveness of the jigsaw technique on students' reading comprehension skills.

2.7 Ethical Considerations

Ethical considerations included obtaining informed consent from the students and their parents, ensuring the confidentiality of student data, and providing students with the option to withdraw from the study at any time without penalty.

3. FINDING AND DISCUSSION

3.1 Description of Pre-test

The researcher conducted the pre-test in 10th-grade students of SMA Negeri 1 Botumoito to assess or measure the students' reading comprehension before the introduction of an intervention jigsaw technique in cooperative learning. The primary purpose of a pre-test is to collect baseline data or information about a specific group or individual's knowledge before any changes or interventions take place. In summary, after calculating the interval class the researcher got the highest score of students was 80 on the test and the lowest was 13. The interval class was 6, the wide interval class 12, and the counting the mean score was:

$$X = \frac{\sum X_1}{n} = \frac{1093}{24} = 45{,}55$$

Table 1. The Interval Relative Frequency in Pre-Test

No	Students' score	Frequency	Percentage
1.	12-23	4	16,67%
2.	24-35	1	4,16%
3.	36-47	10	41,67%
4	48-59	2	8,33%
5	60-71	6	25%
6	72-83	1	4,16%
Total		24	100 %

The frequency distribution in the table above indicates how many students fell into each score range. The largest group of students (10 out of 24) scored in the "36-47" range, representing 41.67% of the total participants. The second-largest group consists of students who scored in the "60-71" range, with 6 students (25% of the total). The "12-23" and "48-59" ranges each have 4 students (16.67% and 8.33%, respectively). Hence the "24-35" and "72-83" ranges have the smallest number of students, with 1 student each (4.16% each).

These scores imply that students' achievement in the pre-test was low where most students got scores between 36 to 47 with an average score was 45,55. it could also be seen from the chart visually that the highest score was in range 36-47.

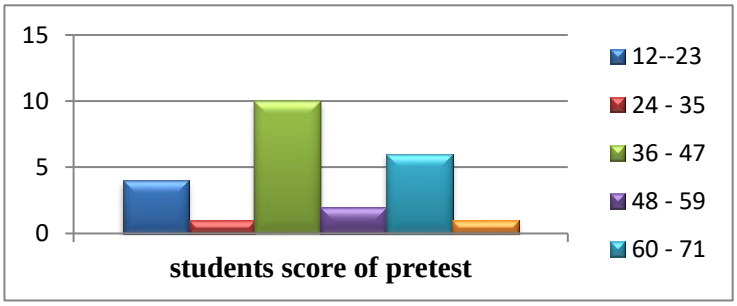

Figure 1. *Students' Score of Pretest*

3.2 Description of Post-Test

The post-test was a crucial evaluation tool used to assess the effectiveness of an intervention or treatment by measuring changes in students' knowledge after the intervention. It provides valuable data for making informed decisions, improving interventions, and gauging the success of educational or experimental research conducted on 10th-grade students of SMA Negeri 1 Botumoito. In summary, after calculating the interval class the researcher got the highest score of students was 100 in the test and the lowest was 23. The among interval class was 6, the wide of interval class 13, and the counting the mean score was:

$$X = \frac{\sum x_1}{n} = \frac{1787}{24} = 74$$

Table 2. The Interval Relative Frequency in Post Test

No	Students' score	Frequency	Percentage
1.	22-34	1	4,16%
2.	35-47	1	4,16%
3.	48-61	6	25%
4	62-74	3	12,5%
5	75-87	4	16,67%
6	88-100	9	37,5%
Total		24	100 %

The majority of students (37.50%) scored in the range of 88-100, indicating a high level of comprehension or achievement in the post-test. The next largest group of students (25%) scored in the range of 48-61, suggesting a moderate level of understanding. Students who scored in the 75-87 range (16,67%)

also performed well, indicating a good grasp of the material. A smaller group of students scored in the 35-47 and 22-34 the same percentage (4,16%) while they scored 62-74 (12.5%) ranges, which suggests varied levels of performance. The data indicates a generally positive outcome of the intervention, as a significant portion of students achieved high or moderate scores in the post-test. These data can also be seen in the chart below.

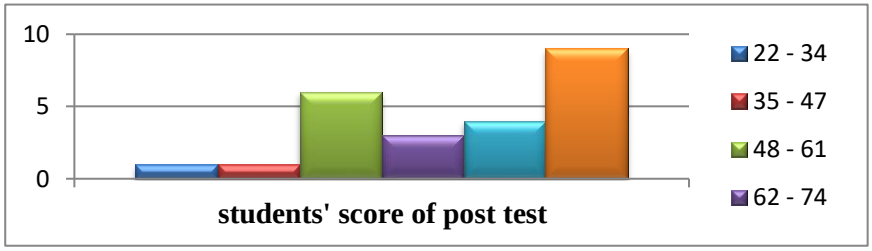

Figure 2. *Students Score of Post-Test*

3.3 Hypothesis Verification

The comparison between students' average on the pre-test which was 45,55 and their achievement on the post-test which was 75. This indicates that the jigsaw technique had stimulus the students' comprehension in reading report text. Further to the verification of the hypothesis, the result of significant value was 0.000.

Table 3. Hypothesis Verification

Paired Samples Test					
	Paired Differences		t	df	Sig. (2-tailed)
	95% Confidence Interval of the Difference				
	Lower	Upper			
Pre-test – post-test	-32.59	-25.15	-16.0	23	**.000**

If the significant value was t < 0,05, hence H0 rejected and Ha accepted **H_a** = *There was the influence of using the jigsaw technique on reading comprehension for ten grade students of SMA Negeri 1 Botumoito.* The choice of the Jigsaw technique in cooperative learning strategy as a stimulant for promoting reading comprehension skills among 10th-grade students of SMA Negeri 1 Botumoito showed great progress in students' understanding of reading. Over the treatment sessions, there was a consistent improvement in student engagement and participation. The use of the Jigsaw method, with its collaborative approach, seemed to encourage students and actively make them contribute to group discussions, share information, and present their assigned topics also their perspectives.

According to Majid (2013), there are both advantages and disadvantages to using the jigsaw cooperative learning method. One positive aspect was that it allowed students to work together, promoting shared responsibility in the learning process. Additionally, students using the jigsaw method tend to have a better understanding of the lessons, suggesting that this collaborative approach helps them grasp the material more comprehensively. Another advantage is that each group member has the right to specialize in a particular area, encouraging individual accountability and allowing for deeper exploration of topics within the group. The teaching and learning process under the jigsaw method also fosters positive interdependence among students, where the success of each student is linked to the success of the entire group, creating a supportive learning environment. These findings align with theories that emphasize the importance of interaction and shared experiences in the learning process.

These advantages were proven during the treatment process of implementing the Jigsaw-type cooperative learning method in the classroom done by the researcher. It showed that students previously were reluctant and did not want to discuss in group became active in Jigsaw group discussing and taking responsibility for their respective topics, and are actively involved in working together on the tasks given by the report text to understand the reading report text.

The progress shown from the early meeting reflected the difficulty for students to share information. Some students with higher knowledge still felt selfish about sharing opinions and ideas, they just kept that knowledge to themselves. But then when at the end of the meeting they knew that the group's results would affect the group's score, they started to be stimulated to discuss and take responsibility because they felt that

sharing their knowledge would affect the group's assessment as well. Furthermore, in the treatment nearing the end of the meeting, students began to get used to sharing points of view and discussing their topics. This was beneficial also for improving their critical thinking skills and collective problem-solving.

As the treatments progressed, students demonstrated a growing understanding of the social function, text structure, and language elements in report texts. The method of breaking down the material into segments and having students specialize in one aspect through the Jigsaw groups appeared to be effective in deepening their comprehension. The learning objectives set by the researcher were also progressively achieved throughout the treatments. Students were able to apply their understanding of report text features, including social function, text structure, and language elements, in analyzing different texts provided in each session which were *"main idea, detail information, vocabulary, reference, and inference".*

The proof was that the researcher found when students were asked to find detailed information, they would immediately be able to find the answer from the report text. then when the researcher asked them to look for the reference of a word, they looked directly at the last noun in the text and could correctly conclude the reference that the researcher meant. As well as the main ideas and vocabulary, students can easily find them. However, there was an indicator that students still seemed to have little control over even at the end of the meeting, namely "inference". Here there was only a little increase in students' abilities and they still had difficulty, as evidenced by students still taking a long time to find the implied meaning of the report text.

The classroom atmosphere also appeared positive and lively, indicating that students enjoyed the learning process. The researcher's efforts to create a supportive environment through group discussion Jigsaw seemed to show effective learning to the students. This was found by the researcher where from the beginning of the treatment, the students were noisy and difficult to control, but after the given Jigsaw treatment the students became focused on the group discussion and they tended to be more comfortable asking about their difficulty to the researcher during the cooperative learning class.

However, Majid (2013) stated there are disadvantages of Jigsaw such as the time-consuming nature of the jigsaw method compared to traditional teaching methods. Also, there was a concern about the dynamics between academically strong and weak students. There was a worry that high-achieving students may not want to work with less academically successful peers, and those with lower academic performance may feel inferior when paired with more capable classmates. However, these feelings of discomfort may naturally diminish over time.

This was also found by the researcher, there are still a few students who faced challenges in understanding the material. A few students with a lower ability to understand getting difficult to follow the progress of other students in the Jigsaw class and it took longer time for the researcher to manage the group discussion and the session of teaching the classroom so all of them ended up understanding well and achieve the learning objective. In solving these challenges, the researcher's interventions such as monitoring groups and providing additional explanations, helped the students a little bit address these issues. The willingness of students to consult with the researcher when they felt unclear showed a proactive approach to overcoming difficulties. Therefore, the treatments employing the Jigsaw method were effective in stimulating the students' reading comprehension. The positive outcomes observed indicate the success of the teaching approach in enhancing students' skills in analyzing report texts and the indicators in reading comprehension.

The result of students' comprehension in reading also showed their understanding of main ideas improved. The Jigsaw method, where they focused on different parts of the text, helped them get a better grasp of the overall themes in the reports. In reading the report text, the Jigsaw technique seemed to make it easier for students to pick out and put together the main ideas. Breaking down to detailed information, it was easier for students to understand specific information in the text. By reading carefully and discussing in their groups, they got better at finding and connecting details, which made the information clearer. The Jigsaw technique made students pay more attention to details and helped them become more careful in understanding what they read.

Vocabulary learning was also improved by the Jigsaw method. Discussing vocabulary in expert groups allowed them to explore word meanings and usage, enhancing their vocabulary. When it came to reference in reading, students seemed to understand better using the Jigsaw method. They became skilled at finding the right information to replace references with the correct noun. Lastly, inference, where implicit and explicit information meet in reading, had both challenges and successes with the Jigsaw method. Discussing in expert groups gave students a platform to express and improve their inferential skills. While some initially struggled, the repeated sessions of the Jigsaw method seemed to increase students' confidence in making logical inferences from the text.

Aronson and Patnoe (1997) say that jigsaw helps the students develop a depth of knowledge which is impossible if they try to learn the material on their own. Moreover, the interactive and collaborative nature of the Jigsaw technique in 10th-grade students of SMA Negeri 1 Botumoito made reading comprehension more enjoyable and engaging, which can be especially important for EFL students. Overall, the Jigsaw

technique in cooperative learning aligned with the principles of active learning, collaboration, and student-centered education. These factors make it a suitable choice for promoting reading comprehension skills among EFL high school students, as it provides a dynamic and engaging approach to learning and understanding text.

4. CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

This research conducted at SMA Negeri 1 Botumoito explored the effectiveness of the Jigsaw technique as a cooperative learning strategy to stimulate reading comprehension skills among 10th-grade students studying English as a Foreign Language (EFL). Here are the key conclusions drawn from the study. The research findings revealed a statistically significant difference between the score of the pre-test (45,55) and the score of the post-test (74). The hypothesis was also found accepted with the t value was 0,000 < 0,05 which means there was an influence of the Jigsaw technique as a cooperative learning strategy in 10th-grade students of SMA Negeri 1 Botumoito. The Jigsaw technique fostered collaboration among students, allowing them to share diverse perspectives, engage in peer teaching, and practice communication skills. These aspects of cooperative learning have the potential to positively impact reading comprehension skills over time. In summary, the research study provides valuable insights into the potential of the Jigsaw technique as a cooperative learning strategy for promoting reading comprehension skills among EFL high school students.

4.2 Recommendations

The researcher suggests the students understand that the immediate impact of a teaching strategy may not always reflect its long-term benefits. Be patient and open to the idea that your comprehension skills may improve over time with continued use of cooperative learning techniques. For the teacher, it suggests providing clear instructions and objectives when implementing cooperative learning strategies like the Jigsaw technique. Ensure that students understand the purpose and expectations of the activity.

While the next researcher, considers to analyze deeper about inference indicators, deeper and conducting longitudinal studies to examine the long-term impact of cooperative learning techniques on reading comprehension, they may use different strategies. While this research was only conducted in 6 meetings, the next researcher could try to track students' progress over an extended period to assess the sustainability of improvements or conduct comparative studies to compare the effectiveness of different cooperative learning techniques in promoting reading comprehension. Explore which strategies work best in various educational contexts.

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