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ENHANCING STUDENT LEARNING OUTCOMES THROUGH JIGSAW MODEL: A STUDY AT SMP NEGERI 1 TINGGI RAJA

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ABSTRAK

Penelitian ini mengevaluasi efektivitas model pembelajaran kooperatif *Jigsaw* dalam meningkatkan hasil belajar bahasa Inggris siswa di kelas VII SMP Negeri 1 Kecamatan Tinggi Raja. Melalui penelitian tindakan kelas yang dilakukan selama dua siklus, penelitian ini menemukan peningkatan yang signifikan dalam kinerja siswa, dengan siklus pertama menunjukkan peningkatan sebesar 26% dan siklus kedua menunjukkan peningkatan sebesar 39%. Model *Jigsaw* mendorong diskusi aktif dan kolaborasi di antara para siswa, yang tidak hanya meningkatkan motivasi tetapi juga menumbuhkan rasa tanggung jawab dan kepercayaan diri. Pendekatan pembelajaran kooperatif ini sangat penting untuk mengembangkan keterampilan kognitif dan sosial, sehingga menjadikannya sebagai strategi pengajaran yang berharga. Dalam model Jigsaw, siswa ditugaskan segmen materi tertentu untuk dikuasai dan kemudian diajarkan kepada rekan-rekan mereka, mendorong interaksi yang intens dan memperkuat hubungan sosial dalam kelompok. Penelitian ini menyoroti bahwa metode Jigsaw mengungguli metode ceramah tradisional, yang dibuktikan dengan data *pre-test* dan *post-test*, dengan kelompok eksperimen menunjukkan kinerja yang jauh lebih baik dibandingkan dengan kelompok kontrol yang menggunakan metode pengajaran konvensional. Temuan ini menggarisbawahi pentingnya menerapkan strategi pembelajaran kooperatif seperti model *Jigsaw* di ruang kelas untuk meningkatkan keterlibatan dan keberhasilan siswa, mempersiapkan mereka untuk komunikasi dan kolaborasi yang efektif dalam berbagai konteks sosial dan profesional.

Kata kunci: Model *jigsaw*, pembelajaran bahasa inggris, kolaborasi aktif.

ABSTRACT

This study evaluates the effectiveness of the Jigsaw cooperative learning model in improving students' English learning outcomes in Grade VII at SMP Negeri 1 Kecamatan Tinggi Raja. Through classroom action research conducted over two cycles, the study found a significant increase in student performance, with the first cycle showing a 26% improvement and the second cycle demonstrating a 39% improvement. The Jigsaw model fosters active discussion and collaboration among students, which not only boosts motivation but also cultivates a sense of responsibility and confidence. This cooperative learning approach is essential for developing cognitive and social skills, making it a valuable teaching strategy. In the Jigsaw model, students are assigned specific segments of material to master and then teach to their peers, promoting intense interaction and strengthening social relationships within the group. The research highlights that the Jigsaw method outperforms traditional lecture methods, as evidenced by pre-test and post-test data, with the experimental group showing significantly better performance compared to the control group using conventional teaching methods. The findings underscore the importance of implementing cooperative learning strategies like the Jigsaw model in classrooms to enhance student engagement and success, preparing them for effective communication and collaboration in various social and professional contexts.

Keywords: Jigsaw model, english learning, active collaboration

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INTRODUCTION

Learning is not merely an effort to acquire knowledge but also involves the development of personality aspects. Those who engage in learning experience changes in knowledge, understanding, skills, values, and attitudes (Muryani, 2010). In the teaching process, two essential aspects stand out: teaching methods and teaching media as tools. Innovation in learning can be achieved through variations in methods, media, and teaching models that creatively motivate and capture students' attention (Lestari, 2017).

Learning models serve as guidelines for designing the teaching process, including curriculum planning, organizing materials, setting objectives, and managing the classroom (Hapsari, 2017). One teaching method that develops students' collaboration skills is the jigsaw cooperative learning method. This method encourages students to interact within expert and home groups, fostering an active learning environment and building students' confidence to express their opinions (Aryanti, 2015; Istarani et al., 2014). Discussions within the jigsaw method have been proven to promote collaboration and enhance students' discussion skills (Pozzi, 2010).

Effectiveness in learning, according to Sardiman (in Sutrisno et al, 2023), refers to the outcomes achieved after the teaching and learning process. Previous studies, such as those by Indrawan et al. (2021), found that the online jigsaw method is more effective than video-based learning in enhancing junior high school students' collaboration skills, particularly in the flexibility indicator. Similarly, Suryani and Aman (2019) revealed that the jigsaw method outperforms the lecture method in increasing student engagement and learning outcomes in social studies. These studies emphasize that the jigsaw method, both in online and offline formats, effectively increases student engagement and the quality of learning.

However, despite extensive research on the effectiveness of the jigsaw method, gaps remain in its application in specific learning contexts. One area requiring further exploration is the effectiveness of the jigsaw method at SMP Negeri 1 Kecamatan Tinggi Raja, particularly in improving the learning outcomes of seventh-grade students compared to conventional teaching methods. This study also aims to compare learning outcomes between these two methods and identify any significant differences before and after the implementation of the jigsaw method. The findings of this study are expected to contribute to the development of more effective and contextually relevant teaching methods.

RESEARCH METHOD

This research is based on Classroom Action Research (CAR) and uses a quasi-experimental approach to evaluate the effectiveness of the Jigsaw cooperative learning model in improving student learning outcomes. The research was conducted at SMP Negeri 1 Kecamatan Tinggi Raja, located at Jalan Besar Jati Sari, Tinggi Raja, Asahan, Kota Kisaran, during the 2023-2024 school year. The study involved 29 grade VII students (aged 12-13 years), as this stage is an important period in cognitive and social development. Participants were divided into two groups: an experimental group that applied the Jigsaw method and a control group that used traditional teaching techniques. This quasi-experimental design, specifically the Nonequivalent Control Group approach, reflects actual classroom conditions by using pre-formed groups instead of random assignment.

Data collection methods include pre-test and post-test to measure academic performance, observation to assess student participation and group dynamics, and survey to capture students' perception of the learning process. Quantitative data from the tests were analyzed using paired t-tests to compare scores before and after the intervention, while qualitative data from the observations provided insights into in-class interactions and the

implementation of cooperative learning. This mixed methods approach ensured a comprehensive analysis of the impact of the Jigsaw learning model on students' understanding and mastery of the material.

RESULT AND DISCUSSION

The Effectiveness of Jigsaw Model in English Learning

This study evaluates the effectiveness of the Jigsaw cooperative learning model in improving students' English learning outcomes in Grade VII at SMP Negeri 1 Kecamatan Tinggi Raja. Based on data collected from pre-tests and post-tests, the experimental group, which implemented the Jigsaw model, demonstrated significantly better performance compared to the control group, which followed conventional teaching methods. Students in the experimental group not only achieved higher scores but also displayed enhanced comprehension and more active participation during lessons. The structured peer-teaching approach of the Jigsaw model encouraged students to thoroughly understand their assigned topics before sharing them with their peers, fostering a deeper engagement with the material. Observational data further revealed that students became more confident and interactive during classroom activities, as the method minimized the pressure of individual performance and promoted a sense of shared responsibility for learning outcomes. This collaborative setup effectively developed students' communication and critical thinking skills, essential for mastering a second language.

In addition, interviews with teachers highlighted that the implementation of the Jigsaw method created a dynamic and inclusive learning environment. The division of learning materials into smaller, manageable sections for group work enabled students to tackle complex topics with greater ease and confidence. Teachers observed notable improvements in students' teamwork abilities, social interactions, and mutual respect, which fostered a supportive classroom culture. This cooperative approach allowed students of varying academic levels to contribute meaningfully, ensuring that every participant felt valued and engaged. Furthermore, teachers noted that the Jigsaw model encouraged self-directed learning as students took ownership of their topics and actively sought resources to enhance their understanding. These findings strongly support the hypothesis that the Jigsaw learning model is a practical and effective alternative to conventional teaching strategies, particularly in enhancing student learning outcomes in English as a second language. The results also underscore its potential as a method for promoting collaborative learning and interpersonal skills, which are critical for academic and personal development.

Pre-Test and Post-Test Cycles in Classroom Action Research

1. Pre-Test Cycle:

The pre-test is conducted at the beginning of the learning intervention to assess the baseline knowledge and skills of the students. It provides a reference point to understand the initial capabilities of the experimental and control groups. In this study, students were given tasks related to the learning material, designed to reflect their comprehension and mastery levels before implementing the Jigsaw learning model. The results from the pre-test serve as a diagnostic tool to identify gaps in understanding and form a basis for planning the learning activities.

2. Implementation of the Learning Model:

The intervention, in this case, the Jigsaw cooperative learning model, was applied over two cycles. Each cycle included structured activities where students engaged in collaborative learning through group discussions, peer teaching, and material sharing. The instructional strategy was carefully monitored and refined based on observations and feedback from both students and teachers.

3. Post-Test Cycle:

After completing each intervention cycle, a post-test was administered to evaluate the impact of the learning model on students' performance. The post-test aimed to measure improvements in comprehension, active participation, and skill application, compared to the baseline established during the pre-test. The increase in scores between pre-tests and post-tests was analyzed to determine the effectiveness of the Jigsaw model.

Significance of the Tests:

These test scores were then subjected to a statistical analysis, specifically the paired t-test, to confirm whether the observed improvements were statistically significant, thereby validating the effectiveness of the intervention. The effectiveness of the Jigsaw cooperative learning model was measured using pre-test and post-test scores of the experimental and control groups. A paired t-test was applied to assess the statistical significance of the observed improvements.

Paired t-test Results

Using paired t-test calculations for the experimental group:

- **Mean Pretest Score**: 48.62
- **Mean Post-test Score**: 72.41
- **t-value**: 8.97
- **p-value**: 0.000 ($p < 0.05$)

The results indicate a significant improvement in the experimental group's scores after applying the Jigsaw model. Meanwhile, the control group that used conventional teaching methods demonstrated minimal improvement, with a mean increase of only 5-10%

Sample Data

A sample of student results shows significant differences:

Table 1. Sample Data

Student	Pre-Test	Post-Test	Difference
P1	30	80	+50
P2	30	90	+60
P3	40	50	+10
P4	50	80	+30

From the sample above, it is clear that the experimental group achieved notable score improvements, which aligns with the calculated statistical results.

Active Participation and Collaboration

Observations indicated that the Jigsaw model encouraged deeper engagement and responsibility. Students displayed improved confidence, actively explained topics, and participated in group discussions. This contributed to their understanding and reflected in higher post-test scores.

Improving Students' Understanding and Active Participation

Jigsaw is a cooperative learning model that requires students to work in small groups, where each group member is responsible for learning and teaching a particular part of the material to the other members. This approach improves students' communication and understanding skills through active interaction in groups (Aryanti, 2015). The Jigsaw learning model is very effective in improving students' understanding and active participation, especially

in English learning. In this model, the subject matter is divided into small parts that each group member must learn in depth. There is evidence to suggest that when students debate and express their viewpoints about a text in a cooperative and collaborative manner, greater understanding is achieved leading to the development of better understanding overall (Namaziandost et al., 2019).

Each student is responsible for mastering a particular piece of material and then teaching it to the rest of the group. This ensures that each student truly understands the material, as they not only have to learn for themselves, but also to explain and share their understanding with their peers. In the context of English language learning, students can develop their speaking, reading and listening skills through group discussions, which allows them to practise language use in more natural and interactive situations. In addition, this active participation in the learning process encourages students to be more engaged, feel valued and responsible for the success of the group. When students feel they have an important role in the learning process, they tend to be more motivated to study harder and strive for their group to achieve good results. Through cooperative learning, students can share their information to learn more successfully (Sabbah, 2016). The Jigsaw model not only helps students understand the material better, but also develops social, communication and collaboration skills which are very useful in English language learning.

Encouraging Collaboration and Interpersonal Skills

The Jigsaw learning model is very effective in encouraging collaboration among students, as its approach emphasises cooperation and mutual learning. The effectiveness of collaborative learning is based on the group structure, which can be assigned by the teacher, by the students, or randomly assigned (Chen & Kuo, 2019). Each student is responsible for learning a specific piece of material and then teaching it to hidoyms or her peers, which creates intense interaction and strengthens social relationships within the group. In the context of English language learning, this process allows students to be more confident in communicating, both orally and in writing, as they get used to explaining language concepts to others.

Students also learn to exchange ideas and give constructive feedback, which hones their speaking and listening skills. In addition to improving language skills, this collaboration develops very important interpersonal abilities, such as teamwork, mutual respect and problem-solving skills. When students work together in groups, they learn how to listen to others' opinions, appreciate differences, and find solutions together to overcome challenges that arise in learning. These interpersonal skills are not only useful in academic contexts but also highly relevant in everyday life, especially in a world that increasingly prioritises cooperation and communication between individuals. Studies show that the application of technology (Al-Samarraie & Saeed, 2018) and the jigsaw method (Van Leeuwen & Janssen, 2019) can improve teaching and learning. Thus, the Jigsaw model not only enriches students' language skills, but also prepares them to interact well in various social and professional situations in the future.

Table 2. Value Pre and Post-test

Student	Pre-Test	Post-Test	Significance
P1	30	80	50
P2	30	90	60
P3	30	80	50
P4	40	50	10
P5	30	50	20
P6	50	80	30
P7	40	80	40

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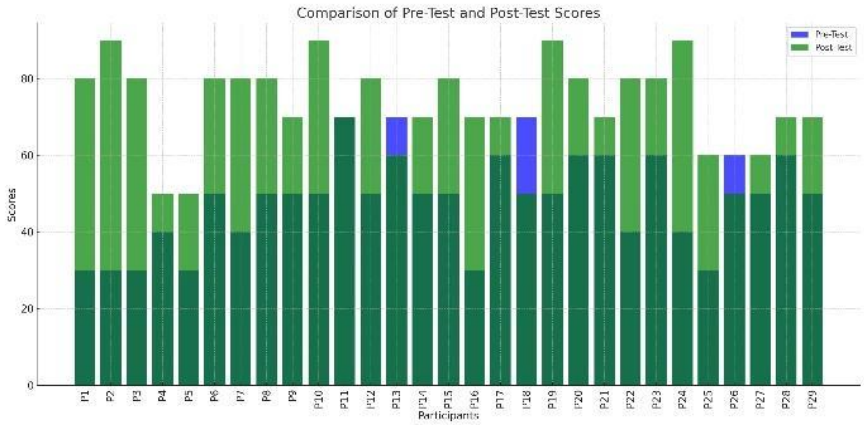
P8	50	80	30
P9	50	70	20
P10	50	90	40
P11	70	70	0
P12	50	80	30
P13	70	60	-10
P14	50	70	20
P15	50	80	30
P16	30	70	40
P17	60	70	10
P18	70	50	-20
P19	50	90	40
P20	60	80	20
P21	60	70	10
P22	40	80	40
P23	60	80	20
P24	40	90	50
P25	30	60	30
P26	60	50	-10
P27	50	60	10
P28	60	70	10
P29	50	70	20
Total	1.410	2.100	



Graph 1. Comparison of post test and pretest scores

First Cycle
Average Pretest Score: 48.62
Average Post-test Score: 72.41
Improvement:

$$\text{Improvement} = \frac{72.41 - 48.62}{48.62} \times 100\% \approx 26\%$$

Second Cycle
Average Pretest Score: 72.41
Average Post-test Score: 100.61
Improvement:

$$\text{Improvement} = \frac{100.61 - 72.41}{72.41} \times 100\% \approx 39\%$$

The calculations show that the Jigsaw cooperative learning model led to a 26% improvement in the first cycle and a 39% improvement in the second cycle. These results demonstrate that the Jigsaw model is significantly more effective than conventional teaching methods in enhancing students' learning outcomes.

CONCLUSION

The findings of this study indicate that the Jigsaw cooperative learning model significantly improves the English learning outcomes of Grade VII students at SMP Negeri 1 Kecamatan Tinggi Raja. This model not only increased academic performance by 26% in the first cycle and 39% in the second cycle but also developed social skills such as collaboration, communication, and responsibility. Its implementation fostered an inclusive, dynamic, and collaborative learning environment, enabling students of varying academic levels to contribute meaningfully. These results support the application of the Jigsaw method as an innovative teaching strategy that prepares students for future social and professional challenges. Further research is recommended to explore the adaptation of the Jigsaw model in other learning contexts or its integration with technology to enhance its effectiveness.

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