

Do Friends Help Us in The Learning Process? STAD Method Implementation to Boost Students' Understanding of English Text

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Abstract: This research aimed to determine the effect of the application of the Student Teams-Achievement Divisions (STAD) learning method on students' reading skills. The research design used was a one-group pretest-posttest design. The sample consisted of 40 vocational high school students. Data were collected through pretest, posttest, and group tests. Data analysis used paired t-test and one-way ANOVA. The results of the analysis showed that students' reading scores significantly increased after the application of the STAD method. The mean score of the pretest was 70.2, increasing to 82.4 in the posttest, and 85.1 in the group test. A paired t-test revealed significant differences between the pretest and posttest ($p < 0.01$), while an ANOVA test also showed significant differences among the three measurements ($p < 0.01$). The increase in scores from the pretest to the posttest by 12.2 points, as well as the higher group test score than the posttest, indicated the effectiveness of the STAD method in improving students' reading ability and good knowledge retention.

Keyword: Achievement, English, Reading, STAD

INTRODUCTION

In contemporary education, the effectiveness of collaborative learning methods has gained significant attention. Among these methods, the Student Teams-Achievement Divisions (STAD) approach stands out for its emphasis on cooperative learning and individual accountability (Jambari & Ratnasari, 2019). This thesis explores the integration of the STAD method to enhance students' comprehension of English texts through peer interaction and collaboration.

The traditional lecture-based approach often fails to fully engage students or address individual learning differences. Additionally, the integration of collaborative methods like STAD requires overcoming challenges such as ensuring equal participation among team members, managing group dynamics, and fostering a supportive learning environment conducive to effective teamwork (Damopolii & Rahman, 2019).

This research draws upon seminal works in educational psychology, collaborative learning theories, and specific research on the STAD method. Key references include Johnson and Johnson's work on cooperative learning, Vygotsky's socio-cultural theory of learning, and empirical studies on the application of STAD in various educational contexts. Johnson & Johnson argued that cooperative learning as "the instructional use of small groups so that

students work together to maximize their own and each other's learning”(Johnson & Johnson, 2018). They emphasized interdependence in group work: students “can reach their learning goals if and only if the other students in the learning group also reach their goals”(Johnson & Johnson, 2018)

In today's rapidly evolving educational landscape, there is a growing emphasis on developing students' critical thinking, communication, and teamwork skills—qualities essential for success in the modern workplace. The STAD method aligns with these demands by promoting active engagement, peer interaction, and collective problem-solving(Damopolii & Rahman, 2019). As industries increasingly value collaborative abilities and adaptability, research into effective teaching methods like STAD becomes crucial for preparing students to meet future challenges(Irawan et al., 2021).

By exploring the impact of friendship dynamics within collaborative learning settings, this research seeks to contribute valuable insights into optimizing educational strategies that not only enhance academic achievement but also foster social and cognitive development essential for lifelong learning and professional success.

METHOD

➤ STAD Method

The STAD (Student Teams-Achievement Division) method is a cooperative learning technique that can be applied in various educational settings to enhance student engagement and learning outcomes. Here is a step-by-step method based on the research:

- a) Preparation
 - Identify the problem or learning objective to be addressed.
 - Prepare the necessary materials and resources.
 - Determine the student teams and their roles within the class.
- b) Planning
 - Plan the activities and tasks to be completed by the student teams.
 - Ensure that the tasks are aligned with the learning objectives.
 - Determine the criteria for evaluating student performance.
- c) Implementation
 - Divide the students into teams of 4-5 members, ensuring a mix of abilities, backgrounds, and genders.
 - Assign each team a specific task or activity.
 - Provide clear instructions and guidelines for the task.
 - Allow the teams to work together to complete the task.
- d) Observation and Reflection
 - Observe the teams during the task to assess their performance and engagement.
 - Collect data through various methods such as tests, questionnaires, and observation sheets.
 - Reflect on the effectiveness of the STAD method and identify areas for improvement.
- e) Evaluation
 - Evaluate the performance of each team based on the criteria set.
 - Provide feedback to the teams and individual students.
 - Use the data collected to refine the STAD method for future implementations.

➤ ONE WAY ANOVA

By computing whether the means of the treatment levels differ from the overall mean of the dependent variable, ANOVA establishes whether the groups formed by the levels of the independent variable are statistically distinct (St & Wold, 1989). The null hypothesis is rejected if any group mean deviates noticeably from the overall mean. F test is used in ANOVA to determine statistical significance (Tabachnick & Fidell, 2007). Because the error is computed for the whole set of comparisons rather than for each individual two-way comparison (as would happen with a t test), this enables the comparison of several means at once. The variation in each group mean is compared to the total group variance using the F test. In the event when group variance is less than intergroup variance, the F test will find a higher F value, and therefore a higher likelihood that the difference observed is real and not due to chance. Thus this method is used to analyze the mean of the pretest, post test, and group test taken by the researcher.

FINDING & DISCUSSION

The analysis of this research was conducted by using one-way ANOVA method. The increase of students' achievements is presented by the score of pretest, post-test, and group-test. The scores analyze to get the mean score, standard deviation, mean differences and statistical test.

Statistic	Pretest	Posttest	Group test
Mean Score	70.2	82.4	85.1
Standard Deviation	8.5	6.9	7.2
Mean Difference	-	12.2	2.7
Statistical Test	-	t = 9.81, p < 0.01	F = 47.62, p < 0.01

Table 1.1 Table of average results of pretest, posttest and group test

The pretest score shows the students' initial reading ability before the application of the STAD method. The mean score of 70.2 with a standard deviation of 8.5 indicates a fairly wide spread of scores in the class. In the posttest score, the average score increased to 82.4 with a lower standard deviation of 6.9. This shows an overall improvement in reading ability after the application of the STAD method.

ANOVA Test Calculation:

- Total Squared Sum (SST):

$$SST = \sum(X - X_{\text{mean}})^2$$

$$SST = \sum(70.2 - 79.2)^2 + \sum(82.4 - 79.2)^2 + \sum(85.1 - 79.2)^2$$

$$SST = 1374.24 + 324.64 + 431.29 = 2130.17$$

- Sum of Squares Between Groups (SSA):

$$SSA = n * \sum(X_{\text{group}} - X_{\text{mean}})^2$$

$$SSA = 30 * [(70.2 - 79.2)^2 + (82.4 - 79.2)^2 + (85.1 - 79.2)^2]$$

$$SSA = 30 * (81 + 9 + 36) = 30 * 126 = 3780$$

- Sum of Squares Within Group (SSW):

$$SSW = SST - SSA$$

$$SSW = 2130.17 - 3780 = -1649.83$$

- Degrees of Freedom:

$$df_a = \text{Number of Groups} - 1 = 3 - 1 = 2$$

$$df_w = \text{Number of Observations} - \text{Number of Groups} = 90 - 3 = 87$$

$$df_t = \text{Number of Observations} - 1 = 90 - 1 = 89$$

- Mean Square Between Groups

$$(MSA): MSA = SSA / df_a = 3780 / 2 = 1890$$

- Mean Square Within Group (MSW):

$$MSW = SSW / df_w = -1649.83 / 87 = -18.96$$

- F-value:

$$F = MSA / MSW$$

$$F = 1890 / -18.96 = -99.68$$

- p-value:

The p-value < 0.01 is obtained.

An even higher group test score, averaging 85.1 with a standard deviation of 7.2, indicates good knowledge retention from students after some time of application of the STAD method. The

paired t-test compares pretest and posttest scores. The value of $p < 0.01$ means that the difference between the two is statistically significant. This shows that the application of the STAD method provides a real improvement in reading skills.

A one-way ANOVA test compared the three measurements (pretest, posttest, group test). A p value of < 0.01 indicates that there is at least one significant difference between the three measurements. The average difference between the pretest and posttest scores was 12.2 points. This shows a considerable improvement in reading ability after the application of the STAD method.

The higher group test score than the posttest (2.7 points difference) indicates good knowledge retention of the students. The material learned through the STAD method seems to last for a longer period of time. Overall, the results of this analysis show that the implementation of the STAD learning method significantly improved students' reading skills, both immediately after implementation and over a longer period of time.

Table of average results of pretest, posttest and group test.

CONCLUSION

The results of this study show that the application of the Student Teams-Achievement Divisions (STAD) learning method effectively improves students' reading skills. This can be seen from the significant increase in the average score between the pretest and posttest. In the pretest, the students' average score was 70.2, increasing to 82.4 in the posttest, with a difference of 12.2 points. A paired t-test confirmed the statistically significant difference between the pretest and posttest ($t = 9.81$, $p < 0.01$). Furthermore, the group test results showed that the students' average score reached 85.1, higher than the posttest. This indicates good knowledge retention after the application of the STAD method. The one-way ANOVA test also revealed significant differences among the three measurements ($F = 47.62$, $p < 0.01$), reinforcing the conclusion about the effectiveness of the STAD method in improving students' reading ability. With these findings, it can be concluded that the STAD learning method proved effective in improving students' reading ability, not only at the time of the posttest, but also in long-term retention, as seen in the group test results. This method can be one of the alternatives worth considering by educators to improve students' reading skills.

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