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EFFECT OF TEAM GAME TOURNAMENT (TGT) LEARNING MODEL ON SCIENCE LEARNING OUTCOMES OF FOURTH GRADE STUDENTS

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ABSTRAK

Untuk membuat pembelajaran lebih menarik dan disesuaikan dengan karakteristik siswa sekolah dasar, model TGT dalam penelitian ini dikombinasikan dengan media pembelajaran kreatif dan interaktif, yaitu pertanyaan origami berwarna. Penelitian ini bertujuan untuk menentukan pengaruh model pembelajaran Team Games Tournament (TGT) terhadap hasil belajar mata pelajaran Ilmu Sosial siswa kelas IV di UPTD Sekolah Dasar Negeri 124392 Pematangsiantar. Penelitian ini menggunakan desain kuantitatif pra-eksperimen dengan desain One Group Pretest-Posttest. Ukuran sampel adalah 25 siswa. Teknik pengumpulan data yang digunakan meliputi pretest-posttest dan dokumentasi. Data dianalisis menggunakan uji normalitas Shapiro-Wilk dan uji t. Hasil menunjukkan bahwa skor rata-rata pretest adalah 52,96 dengan tingkat kelulusan 12%, yang kemudian meningkat menjadi 82,32 dengan tingkat kelulusan 100% pada posttest. Hasil analisis normalitas menunjukkan bahwa data pra-tes memiliki nilai signifikan 0,088 > 0,05 dan data pasca-tes memiliki nilai signifikan 0,289 > 0,05, sehingga hasil analisis normalitas menunjukkan data yang terdistribusi secara normal. Berdasarkan hasil uji hipotesis, nilai t yang dihitung adalah 12,641 dan nilai t adalah 2,064, dengan tingkat signifikansi 0,05. Karena probabilitas signifikansi adalah 0,000 < 0,05, atau nilai t yang dihitung > nilai t tabel, dan hasil yang diperoleh (t hitung = 12,641 > t tabel = 2,064), maka Ho ditolak dan Ha diterima. Oleh karena itu, dapat disimpulkan bahwa model pembelajaran Turnamen Permainan Tim (TGT) memiliki pengaruh terhadap hasil belajar mata pelajaran sejarah pada siswa kelas empat di UPTD SD Negeri 124392 Pematangsiantar..

Keywords:
Teams Games Tournament, Social Studies Learning Outcomes

ABSTRACT

To make learning more engaging and tailored to the characteristics of elementary school students, the TGT model in this study was combined with creative and interactive learning media, namely colored origami questions. This study aims to determine the effect of the Team Games Tournament (TGT) learning model on the social studies learning outcomes of fourth-grade students at the UPTD of Public Elementary School 124392 Pematangsiantar. This study employed a quantitative pre-experimental design with a One Group Pretest-Posttest Design. The sample size was 25 students. Data collection techniques used included pretest-posttest and documentation. Data were analyzed using the Shapiro-Wilk normality test and the t-test. The results showed that the average pretest score was 52.96, with a 12% completion rate, which then increased to 82.32, with a 100% completion rate on the posttest. The results of the normality analysis show

that the pretest data has a significant value of 0.088>0.05 and the posttest value has a significant value of 0.289>0.05, so the results of the normality analysis have normally distributed data.Based on the results of the hypothesis test, the calculated t value was 12.641 and the t value was 2.064, with a significance level of 0.05. Since the probability of significance is 0.000 <0.05, or the calculated t value > t table, and the results obtained (t count = 12.641 > t table = 2.064), Ho is rejected and Ha is accepted. Therefore, it can be concluded that the Teams Games Tournament (TGT) learning model has an effect on the social studies learning outcomes of fourth-grade students at the UPTD of SD Negeri 124392 Pematangsiantar.

1. Introduction

Education is a fundamental element in national development. Through education, individuals are equipped with the knowledge, skills, and values necessary to face life's challenges and contribute to society. A nation's progress depends heavily on the quality of its human resources, which are developed through an effective and sustainable education system (Nurbaiti, 2021).

Law No. 20 of 2003 defines education as a conscious and planned effort to create a learning environment that encourages students to develop their potential, spirituality, intelligence, personality, noble character, and life skills. Through education, individuals can gain knowledge, learn responsibility, and prepare themselves to face future challenges. Education also plays a role in shaping individuals' abilities to solve various problems in everyday life.

In Indonesia, education continues to evolve to reflect changing times and global needs. Past learning methods that solely emphasized the transmission of knowledge are now considered irrelevant. Education now needs to adapt to become a process that supports students in developing their potential and skills necessary for personal, social, national, and state life. One crucial aspect of education is the curriculum (Ismah & Ernawati, 2022).

A curriculum is a set of plans and arrangements regarding objectives, content, and learning materials, as well as methods used as guidelines for implementing learning activities to achieve specific educational goals. Indonesia is currently transitioning from the 2013 Curriculum to the Independent Curriculum.

The Merdeka Curriculum is a new approach to education in Indonesia, aimed at preparing the young generation with the skills necessary to face the challenges of the 21st century. The free learning program promoted by this curriculum aims to help students achieve their best potential, so that they can develop into individuals who are confident, creative, innovative, productive and have a positive attitude. Apart from that,

this curriculum also aims to provide students with the skills necessary to participate in society, country and world development (Mukminah et al., 2020)

At the elementary school level, the Independent Curriculum (Curriculum Merdeka) adds Natural Science (IPA) and Social Studies (IPS) lessons, a significant change. The integration of science and social studies, known as IPAS, aims to help students better understand their surroundings. According to Widodo et al. (Ulfia & Irwandani, 2021), this integration aims to develop students' ability to think carefully, logically, and structuredly to understand various events in nature and in social life. Therefore, in line with the goal of the Independent Curriculum to improve students' overall competencies, this approach can be an effective strategy.

In science learning, students are taught to understand and analyze events in nature and society well, as well as to use scientific methods to solve problems, report observations, and show concern for the environment and society (Palupi & Rahayu, 2021).

However, data from the 2022 Program for International Student Assessment (PISA) shows that Indonesia still performs lower than the OECD average in reading and science. The average science reading score in Indonesia is only 396, far below the OECD average of 495 (OECD, 2023). This situation reflects a gap between expectations and actual outcomes. Many students in schools tend to be passive during science lessons, necessitating improved teaching methods to improve their participation and learning outcomes.

Observations conducted on June 16, 2025, in grade IV of the UPTD of Pematangsiantar Public Elementary School 124392 showed that the science learning process was still dominated by a one-way lecture method from teacher to student. This resulted in a monotonous classroom atmosphere, with students being less active in learning (Armidi, 2022) . Teachers also had not utilized varied and interactive learning models. The low variety of teaching methods resulted in a lack of student motivation and participation in learning activities, particularly in developing social and collaborative skills. Furthermore, the diverse characteristics of students in terms of abilities and learning styles made learning less effective if not supported by the right approach.

One solution to this problem is to implement a cooperative learning model, namely the Team Games Tournament (TGT) model. This model is designed to engage students in more active learning through activities involving teamwork and fun competition. With this approach, students not only become more engaged but also learn better (Amni et al., 2021).

The Teams Games Tournament (TGT) model is a learning model that combines games and competition to increase student enthusiasm and engagement in learning. Developed by David DeVries and Keith Edwards in 1995, the model aims to foster basic skills, improve learning outcomes, enhance social relationships, build self-confidence, and foster respect for differences. In practice, the Teams Games Tournament (TGT) model integrates fun learning activities into a collaborative teamwork environment.

To make learning more engaging and tailored to the characteristics of elementary school students, the TGT model in this study was combined with creative and interactive

learning media, namely colored origami questions. This media is presented in an engaging visual format, with each origami fold containing a question that students must answer in groups. In addition to stimulating curiosity, this media also facilitates conceptual understanding through active discussion and question-and-answer processes (Zulfira et al., 2019)..

The use of origami questions supports a fun and contextual learning approach, in line with the principles of the Independent Curriculum. With an engaging presentation and group learning strategies, students can learn with greater enthusiasm and motivation, and become accustomed to expressing opinions and listening to the ideas of their teammates.

Several previous studies have demonstrated the effectiveness of the TGT model in improving learning outcomes. Wijaya (Siahaan et al., 2024) stated that the TGT model is able to foster students' interest in learning science subjects. Research by Isjayanti et al. (Yunita et al., 2020) also showed that the application of TGT assisted by rotating wheel media significantly improved the science learning outcomes of fourth-grade students at SDN Pati Wetan 03, with an average increase in grades from 55 to 85. In addition, this model also encourages student activeness in group discussions and collaboration (Yahya & Bakri, 2019).

Theoretically, cooperative learning approaches like TGT are supported by Vygotsky's social constructivism, which emphasizes the importance of social interaction in learning. The principles of this theory align with the TGT learning model, which emphasizes teamwork and interaction between students. Slavin (Fauziyah & Anugraheni, 2020) also explains that collaboration in TGT fosters individual and group responsibility for achieving shared goals, which can strengthen student motivation and engagement.

Based on the background of the problem above, the researcher is interested in conducting a study entitled "The Effect of the Team Games Tournament (TGT) Learning Model on the Science Learning Outcomes of Grade IV Students at UPTD SD Negeri 124392 Pematangsiantar"

2. Method

The type of research used in this study is quantitative research. Sugiyono, (2018) stated that quantitative research method is a research method based on the philosophy of positivism, used to research certain populations or samples, sampling techniques are generally carried out randomly, data collection uses research instruments, data analysis is quantitative/statistical with the aim of testing the established hypothesis (Utari et al., 2018) . The type of research used is Pre-Experimental Design using the One Group Pretest-Postest design type because it only uses one class as a research sample.

The research design used was a One-Group-Pretest-Posttest Design. This design only involved one class, namely the experimental class, which began with a pretest before being given treatment, then a posttest after being given treatment using the Teams Games Tournament (TGT) learning model.

This research will be conducted at the UPTD of SD Negeri 124392 Pematangsiantar, Jalan Sriwijaya Gang Emas, Pematangsiantar City, North Sumatra. The research will be conducted during the odd semester of the 2025/2026 academic year.

Population is a generalization area consisting of objects/subjects that have certain qualities and characteristics that researchers determine to be studied and then conclusions drawn (Nurhasanah, 2018) . The population of this study was all fourth grade students of UPTD SD Negeri 124392 Pematangsiantar, totaling 25 people.

A sample is a portion of the total number and characteristics of a population (Sugiyono 2017). In this study, the sample consisted of all 25 fourth-grade students at the UPTD of SD Negeri 124392 Pematangsiantar. The sampling technique used in this study was saturated sampling. Saturated sampling is a sampling technique where all members of the population are used as samples (Seran et al., 2021).

According to Sugiyono (Situmorang & Pangaribuan, 2021) A hypothesis is a temporary answer to a research problem. The validity of the hypothesis must be proven through collected data. If both tests have normally distributed data, then a hypothesis test can be conducted. Hypothesis testing is conducted to determine whether there are significant differences in the average data. The hypothesis test used in this study is the T-test. The hypothesis test in this study is formulated as follows:

Determining the $_{\text{calculated}}$ t value using the formula

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N(N-1)}}}$$

3. Result and Discussion

This research was conducted at UPTD SD Negeri 124392 Pematangsiantar, Jalan Sriwijaya, Kelurahan Baru, Kecamatan Siantar Utara, Pematangsiantar in August 2025. This research was conducted to determine how much influence the Teams Games Tournament Model had on student learning outcomes.

This research is a Pre-Experimental research using the One Group Pretest-Posttest Design which was conducted in class IV at UPTD SD Negeri 124392 Pematangsiantar with a total of 25 students, the first thing done in this research was giving a pretest to students in order to know the students' learning outcomes before the implementation of the Teams Games Tournament (TGT) learning model, then learning was carried out on the subject of Science material on Plant Body Parts using the Team Games Tournament (TGT) learning model after the learning was carried out, then a posttest was carried out, the aim was to find out the students' learning outcomes after being given treatment.

Researchers conducted a trial of the question instrument in class IV of UPTD SD Negeri 124388 Pematangsiantar on August 11, 2025. Twenty-five students were given the trial. Of the 30 multiple-choice questions, 25 were valid and 5 were invalid. This instrument trial was conducted to determine the validity, reliability, and test the level of difficulty and discriminatory power of the questions. (Pitriani et al., 2022) .

Validity test is a way to find out whether the questions or instruments really measure what should be measured and are suitable or not to be used as research

instruments. To find out whether the test questions that have been prepared are valid or not, it is necessary to test the correlation between the scores (values) of each question item with the test question score using the criteria rhitung > r tabel then the question is considered valid and if rhitung < r tabel then the question is considered invalid. The validity test is carried out using the product moment correlation formula with a real level of α = 0.05 or 5% for N = 25 students and obtained r tabel = 0.396.

Research Data Analysis Results

Normality Test Results

A normality test was conducted to determine whether the *pretest* and *posttest data* from the sample were normally distributed. In this study, *the Shapiro-Wilk test was used to test the normality of the data* because the sample size was less than 30 people, using SPSS version 26. The following are the results of the normality test used with SPSS version 26:

***Pretest* and *Posttest* Data**

Table 1. Normality Test Results

Results	Shapiro-Wik	Significant Level	Information
Pre-Test	0.088	0.05	Normal
Post-Test	0.289	0.05	Normal

Data is said to be normally distributed if the significance value is >0.05. Based on the results of the normality test, the pretest significance value is 0.088 >0.05, thus it can be concluded that the value is normally distributed. Meanwhile, for the posttest value of 0.289 >0.05, it can be concluded that *the pre-test* and *post-test* are normally distributed because the significance value obtained is >0.05.

Hypothesis Testing

The following are the results of the t-test data, namely:

Table 2. t-Test Results

Information	Mark
t count	12,641
t table	2,064
Significant Rates	0,000

The hypothesis test used in this study is *the t-test* . *The t-test* used is *a paired sample t-test* . Based on the results of the t-test in the table above, it can be seen that it is significant at 0.000 <0.05, so there is an influence of *the Teams Games Tournament (TGT) learning model* on the science learning outcomes of fourth-grade students of UPTD SD Negeri 124392 Pematangsiantar. The results of *the Paired sample test analysis* show that $t_{count} > t_{table}$, where t_{count} is 12.641, while t_{table} is 2.064 with a significance level of 0.05. So that 12.641> 2.064 is obtained, which means there is an influence of *the Teams Games Tournament (TGT) learning model* on the science learning outcomes of fourth-grade students of UPTD SD Negeri 124392 Pematangsiantar.

Discussion

This section will describe the results of the study. These results refer to the conclusions drawn based on the collected and analyzed data. This study aims to determine

whether *the Teams Games Tournament (TGT) learning model has an effect* on the science learning outcomes of fourth-grade students at the UPTD of SD Negeri 124392.

The results of the study show that *the Teams Games Tournament learning model (TGT)* has an impact on student learning outcomes, the TGT model is a learning model that can increase students' enthusiasm for learning and a sense of responsibility among fellow members in their group, because indirectly students will try to get high points during the learning process, so it can be said that this TGT model can improve student learning outcomes. (Panggabean et al., 2021) .

Judging from the characteristics of fourth-grade students, they tend to think based on their real-life experiences. This model is an appropriate choice for learning. At this stage, students' attention is more focused on everyday life and their curiosity is heightened. Therefore, when learning takes the form of games, it creates a fun learning environment, and students become more active and engaged in their learning (Simanjorang, 2023)

Observations revealed a change in student behavior at the beginning of the lesson, with many engaging in other activities or acting indifferent during the learning process. However, by the final meeting, only a few students were engaged in other activities. In the first meeting, only a few students were actively participating in the lesson, but with the use of the *Team Games Tournament* (TGT) learning model, students began to become more active in the learning process (Tanjung & Theresia, 2022) .

The stages carried out by researchers in implementing *the Teams Games Tournament (TGT) learning model* are as follows:

1. Planning Stage

1) Material Identification

The researcher first determined the material to be taught, namely plant parts and their functions. In explaining the learning material, the researcher used visual media to explain the material on plant parts. This material was selected according to the students' developmental level, was easy to understand, and could be visualized through visual media. The main learning objectives were for students to be able to:

a. Mention the parts of a plant's body.
b. Explain the function of each part of the plant correctly.
c. Connecting the material with everyday life, for example the uses of stems, roots, or leaves in plants around them.

2) Preparation of Tools and Materials

To make learning more effective, teachers prepare supporting media and facilities, including:

a. Image media: colored images of plant body parts
b. Discussion Worksheet (LKD): used as group exploration material.
c. Test instruments: pre-test and post-test questions (25 multiple choice questions each).
d. Colored origami: as a medium for wrapping questions in game and tournament activities.
e. Tournament question box: a place to draw questions to make it more interesting.

f. Simple scoreboards and rewards: to foster students' learning motivation.

3) Making Assessment Instruments

Teachers design assessment instruments that cover various aspects, both individual and group, namely:

a. Group discussion assessment.
b. Game assessment.
c. Tournament scoring.
d. Individual assessment (pre-test and post-test results). This aims to ensure that the assessment focuses not only on individual knowledge but also on teamwork skills and group attitudes.

2. Implementation Stage

1) Class Presentation (Introduction)

The teacher opens the lesson with a greeting, prayer, and apperception. Afterward, the teacher explains the learning objectives so students understand the direction of the activities to be carried out. Next, students are given a pre-test to determine their initial abilities (Azis & Pertiwi, 2021) . The teacher delivers material on plant parts using images. The images are displayed interactively so students can observe, ask, and answer simple questions before moving on to the discussion stage (Rahmi et al., 2021) .

2) Group Formation

The researcher divided the students into four groups, each consisting of six students. The group names were adjusted to the students' wishes, namely: group 1, group 2, group 3, group 4. After the groups were formed, the teacher distributed the worksheets for discussion together.

Group Discussion Assessment Criteria:

1. Cooperation between members: 5 points.
2. Activity of each member: 5 points.
3. Accuracy of discussion answers: 15 points.

Total: 25 points.

3) Games

The researcher prepared questions in colored origami forms. Each group sent a representative to answer the questions in a relay. The answers were posted on a provided media and then scored by the researcher. Each student who had answered the questions returned to the back of the line to take turns.

Game Assessment Criteria:

Questions 1 – 4 = Score 5

Questions 5 – 6 = Score 10

Total score: 40 points.

Researchers recorded each group's scores to maintain openness and build a healthy competitive atmosphere.

4) Tournament

At this stage, the researcher prepared a box containing origami questions. A group representative took a question, and the teacher read it aloud to the class. All groups were

given the opportunity to answer by raising their hands. The group with the first correct answer earned a point.

Tournament Judging Criteria:

Questions 1 – 4 = Score 5

Questions 5 – 6 = Score 10

Total score: 35

This system trains speed of thinking, courage to answer, and cooperation in groups.

3. Evaluation and Closing Stage

5) Award

After all activities are completed, the teacher calculates the final score of each group based on:

Group discussion (maximum 25 points).

Game (maximum 40 points).

Tournament (maximum 35 points).

The maximum total score that can be obtained = 100 points.

The group with the highest score is declared the winner and receives a simple award or prize. This not only increases motivation but also fosters a positive competitive spirit.

6) Post-Test

Students returned to their seats and completed a post-test (25 multiple-choice questions). This test was used to measure the extent to which student learning outcomes improved after implementing the TGT model. Pre-test and post-test results were then compared to determine learning effectiveness (Yunanda et al., 2018) . Based on the pretest results, the average student academic achievement score was 52.96, with 22 students scoring below the minimum competency criteria (KKTP). Judging from the percentage results, it can be said that the level of student learning achievement before using the TGT model was relatively low.

Based on the post-test results, the average value obtained was 82.32, so after using *the Teams Games Tournament* (TGT) model, students obtained better learning outcomes compared to before applying the TGT model. The normality test has been met, so the hypothesis test can be continued. From the test results given to students, the calculated t value is 12.641 and the table t value is 2.064 with a significance level of 0.05. Thus, the calculated t value is > table t value , which means that H0 is rejected and Ha is accepted, which can be seen that there is an influence of *the Teams Games Tournament model. (TGT)* on student learning outcomes.

Based on the results of the data calculations, there is an influence of *the Teams Games Tournament* (TGT) model on the learning outcomes of students in grade IV of UPTD SD Negeri 124392 Pematangsiantar. This can be proven from the results of the T-test which has been obtained with a significance of 0.000 <0.05, so the hypothesis in this study is accepted and successful. (Azizah et al., 2021) . To strengthen the success of *the Teams Games Tournament (TGT*) learning model, it can be seen from previous research conducted by Defitasari Novia Anggraeni, Yulianti (2024) where the results of the study stated that there was an increase in the Learning Outcomes of Grade IV Science Content through *the Teams Games Tournament (TGT*) Learning Model. The effect can be seen from

the increase data: pre-cycle: average cognitive achievement 43 and student participation 78. Cycle 1: Average cognitive achievement 66.65 and student participation 90.5. Cycle 2: average cognitive achievement 80.25 (Diamanda Yuana Putri, 2023) . The results of the research that has been conducted previously show that there are differences in student learning outcomes between pre-test and post-test scores. It can be concluded that there is an effective and significant influence on student learning outcomes using the *Teams Games Tournament* (TGT) learning model.

Therefore, from the results of the research that has been conducted, it can be concluded that *the Teams Games Tournament* (TGT) learning model can improve the science learning outcomes of fourth grade students at UPTD SD Negeri 124392 Pematangsiantar.

4. Conclusion

Based on the results of research and hypothesis testing conducted by researchers, it can be concluded that: there is an effect of the application of the Teams Games Tournament (TGT) model on the learning outcomes of fourth-grade students of UPTD SD Negeri 124392 Pematangsiantar. This is proven by the normality test value. Based on the results of the normality test, the significance value of the pretest value is 0.088>0.05, so it can be concluded that the value is normally distributed. While for the Posttest value of 0.289>0.05, it can be concluded that the value is normally distributed. Furthermore, the data was tested using a hypothesis test. The results of the hypothesis test obtained t count = 12,641 and t table value = 2,064 with a significance level of 0.05, because the significant probability is 0.000 <0.05 or the t count value> t table and the results obtained t count = 12,641> t table = 2,064, so H 0 is rejected and Ha is accepted. This shows that there is an influence of the Teams Games Tournament (TGT) learning model on the learning outcomes of class science.

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