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IMPLEMENTATION OF THE GAMIFICATION-BASED TGT LEARNING MODEL TO OPTIMIZE LEARNING OUTCOMES OF GRADE IV STUDENTS

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Abstract : The low interest of elementary school students in Natural Science (IPA) indicates the need for a more engaging and interactive learning approach. Traditional teaching methods often fail to stimulate active student participation; therefore, innovative strategies such as the Team Games Tournament (TGT) learning model are required. This study aims to determine the effectiveness of the gamification-based TGT learning model in improving fourth-grade students' science learning outcomes. The research employed a quantitative approach using a pre-experimental design with a One-Group Pretest–Posttest format. The study was conducted at SD Negeri Kertosari and involved 18 Grade IV students. Data were collected through learning outcome tests, observations, and documentation. The TGT model was implemented in a single treatment session using science material on the topic of "Energy." The results revealed a significant improvement in students' learning outcomes, as the average score increased from 45.00 in the pretest to 85.00 in the posttest. In conclusion, the gamification-based TGT learning model is effective in enhancing students' understanding and learning outcomes in Natural Science at the elementary school level. This study implies that incorporating competitive and game-based elements into cooperative learning can increase student engagement and achievement. Future research is recommended to integrate TGT with digital learning media and to examine its effectiveness across different subjects and grade levels.

Keywords: Team Games Tournament (TGT), Natural Science Learning Outcomes, Elementary School Students, Pre-Experimental Design, Gamified Learning

INTRODUCTION

According to Ki Hadjar Dewantara (2013), education is an effort to promote the growth of moral character (inner strength and personality), the mind, and the body of children. Education is able to create quality individuals who are ready to contribute to national development. Providing quality education will have a direct impact on the overall

quality and standard of the educational system. Therefore, all components within education need to undergo continuous improvement to ensure better quality. The development of educational standards and quality must also align with the advancement of science and technology that continues to shape human life. One aspect of life influenced by science is Natural Science (IPA). Natural Science provides insights into the natural world, obtained through scientific, logical, and systematic observation. Therefore, knowledge of Natural Science becomes essential for humans and is taught starting from the elementary school level (Rahmawati & Apriyanto, 2025).

Natural Science (IPA) in elementary school is one of the core and essential subjects. Through science learning, students are encouraged to think critically, logically, analytically, creatively, and systematically, as well as to collaborate with others. These skills are highly important in preparing students to keep up with the rapid development of science and technology in the modern era. To ensure that science learning objectives can be achieved optimally, one important aspect that needs attention is how teachers deliver the material and manage the learning process.

Based on direct observations and interviews conducted at SDN Kertosari, it was found that students' learning outcomes in the science subject were still low. This can be seen from the low results of the mid-semester assessment, where only 18 students met the Learning Outcome Achievement Criteria (KKTP). This indicates that most students have not fully understood the material. The informant stated that teaching has mostly relied on picture-based media and has not yet utilized interactive media or other engaging strategies. As a result, students tend to feel bored, unenthusiastic, and less active during learning. This is consistent with the opinion of Bili et al. (2024), who stated that the lack of interactive media and varied strategies often leads to boredom, reduced engagement, and decreased student interest, ultimately affecting their learning outcomes. Therefore, to address this issue, a more enjoyable and engaging learning model is needed—one that actively involves students, such as the Teams Games Tournament (TGT) model combined with a gamification approach, to improve student learning outcomes. This is in line with a study conducted by Muh. Nur (2023), which showed that the implementation of TGT with a gamification approach

increases students' motivation, helps them stay focused on the material, and indirectly improves their learning outcomes.

The Teams Games Tournament (TGT) model utilizes competition as an effective way to improve learning outcomes, where students compete to answer questions and collaborate in teams during tournaments. This model has been proven to engage students by fostering healthy competition and motivation through interactive and collaborative classroom activities (Tahir, Syamsuddin, & Quraisy, 2024). To further maximize improvements in learning outcomes, the implementation of TGT is enhanced by integrating gamification elements.

According to Darmawiguna (2019), gamification is an innovative learning strategy that adapts game-like elements or characteristics to improve students' learning outcomes. The goal of using gamification is to create a learning atmosphere that resembles playing a game, allowing students to feel excited, challenged, and more engaged during lessons. Thus, applying gamification within the TGT cooperative learning model not only supports cognitive learning but also engages students emotionally and socially. Students become more interested and challenged to complete learning activities, ultimately increasing their motivation and improving their learning outcomes.

This is supported by previous research conducted by Listiani & Anshori (2025), which found that the Teams Games Tournament (TGT) model positively impacts student learning outcomes. The application of the TGT model makes learning more enjoyable, encouraging students to participate actively because learning is not only about understanding the material but also involves playing games while learning. Based on the explanation above, the researcher is interested in conducting a study entitled "Improving Students' Science Learning Outcomes Using the Teams Games Tournament (TGT) Learning Model with a Gamification Approach for Fourth-Grade Students at SDN Kertosari."

METODOLOGI

This study employs a quantitative research approach with a pre-experimental design. The type of design used is the One-Group Pretest–Posttest Design, which involves one group of participants who are given a pretest before the treatment and a posttest after the treatment.

This design allows researchers to determine the effect of the Teames Games Tournament (TGT) learning model by comparing students' learning outcomes before and after the intervention. The experimental design is illustrated as follows:

Pretest (0_1)	Treatment (X)	Posttest (0_2)
0_1	TGT Model	0_2

According to Arikunto (2017), the One-Group Pretest–Posttest Design is used to identify the effectiveness of a treatment by observing changes in learning outcomes before and after the intervention.

Research Subject

The subjects of this study were 18 fourth-grade students of SD Negeri Kertosari. The research was conducted during the even semester of the 2025 academic year. The sampling technique used was total sampling since the research focused on one class as the entire sample group.

Data Collecting

1. Test

   Tests were used to obtain quantitative data on student learning outcomes. The test consisted of a pretest and a posttest, each containing 10 multiple-choice questions related to especially in Natural Sciences (IPA) material.
2. Observation

   Observation was conducted to monitor student activity and teacher performance during the learning process using the TGT model.
3. Documentation

   Documentation included photos of learning activities, student attendance lists, test answer sheets, and records of pretest and posttest scores.

Data Analysis

The data were analyzed using descriptive quantitative analysis to determine the increase in learning outcomes before and after the application of the TGT model. The learning mastery percentage was calculated using the following formula (Sarah, 2021):

$$KB = \frac{T}{Tt} \times 100\%$$

Where:

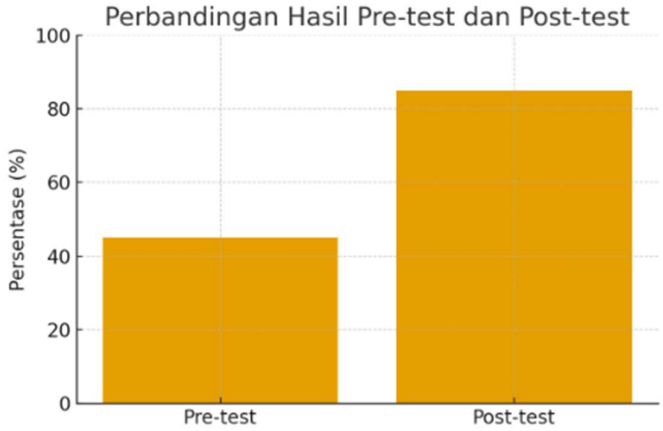
- KB = Learning Mastery

- T = Total score obtained by students
- Tt = Maximum score (100 × number of students)

This analysis was used to determine (1) students' level of mastery before treatment, (2) mastery after treatment, and (3) the improvement in learning outcomes following the implementation of the TGT model.

RESEARCH RESULT

This research was conducted in a fourth-grade class at Kertosari State Elementary School with 18 students. The purpose of this study was to determine the effectiveness of the Teames Games Tournament (TGT) model in improving science learning outcomes. Data were obtained from pretests and posttests evaluated before and after the implementation of the TGT learning model.



1. Pretest Results

Before implementing the TGT method, students were given a pretest to measure their initial understanding of the Natural Science (IPA) topic. Based on the pretest results, the average score achieved by students was 55, with only 45% of students reaching the minimum mastery

criteria. These results indicate that most students have low prior knowledge and require a more engaging learning model to improve their understanding.

2. Posttest Results

After implementing the Teams Games Tournament (TGT) learning model, students were given a posttest to assess improvements in learning outcomes. The results showed significant improvement, with an average posttest score of 20, and 85% of students achieving learning mastery. This indicates that students were able to understand the material better after participating in TGT activities that encouraged active thinking,

discussions, and sharing ideas. 3. Comparison of Pre-test and Post-test Scores

Comparison of pre-test and post-test data shows a significant improvement in student learning outcomes. The average score increased from 45 to 85, representing a 40-point increase. Furthermore, the percentage of students meeting the mastery criteria doubled from 55% in the pre-test to 85% in the post-test. This improvement demonstrates that the TGT model effectively supports students in understanding and mastering the Pancasila Education material.

DISCUSSION

The results of this study indicate that the Teams Games Tournament (TGT) learning model is effective in optimizing the learning outcomes of fourth-grade students. The increase in the average score from a pretest score of 49,2 to a posttest score of 80,6 shows that the implementation of the TGT model has a positive impact on students' understanding of the material being taught. The TGT model, which emphasizes teamwork through game-based activities and academic competition, helps enhance students' motivation, engagement, and enthusiasm for learning. This is in line with cooperative learning theory, which explains that interaction within groups can deepen students' thinking processes and improve learning outcomes.

According to Slavin (2015), the TGT model integrates group learning with academic games that encourage students to actively participate in the learning process. This finding is consistent with the results of this study, in which students appeared more enthusiastic and more confident during group activities and academic tournaments. The team formation stage enables students to collaborate, the games stage provides opportunities to practice their

understanding, and the tournament stage increases students' motivation to demonstrate their best performance. This sequence of activities has proven effective in strengthening conceptual understanding among fourth-grade students.

Trianto (2018) emphasizes that cooperative learning models such as TGT can increase motivation and learning achievement because students are directly involved in the process of constructing knowledge. This perspective supports the results of this study, in which students showed increased motivation and higher learning outcomes after participating in lessons using the TGT model. The game elements and competition within TGT create a more lively and enjoyable learning atmosphere, transforming previously passive students into active participants.

The increase in learning mastery from 45% on the pretest to 85% on the posttest further reinforces the effectiveness of the TGT model. This finding is consistent with the research of Aji and Sary (2018), who revealed that active and collaborative learning can improve academic performance in elementary school students. They explained that students learn more effectively when they discuss, collaborate, and help each other understand the material—which was also evident in this study.

Additionally, the study by Linda et al. (2022) found that cooperative learning models can create a supportive classroom environment, enabling students to feel more confident in expressing their opinions. This was evident during the implementation of TGT, where students demonstrated greater motivation, enthusiasm during academic games, and confidence in participating in healthy competition. This more engaging learning environment contributed to the significant increase in posttest scores.

Overall, the findings of this study confirm that the TGT learning model is effective in addressing issues such as low motivation, limited engagement, and inadequate understanding often associated with traditional teaching methods. The results of this study are consistent with previous research indicating that TGT not only improves learning outcomes but also fosters active participation and collaboration among students. Therefore, the TGT model can serve as a practical and effective instructional strategy for optimizing fourth-grade students' learning across various subjects.

CONCLUSION

Based on the results of this study, it can be concluded that the Teames Games Tournament (TGT) learning model is effective in improving science learning outcomes for fourth-grade students at Kertosari Public Elementary School. This effectiveness is demonstrated by a significant increase in students' average scores from pretest to posttest. The average pretest score of 55 with 45% mastery increased to an average posttest score of 85 with 85% mastery after the TGT intervention.

This improvement indicates that the TGT model successfully improves student understanding because it involves individual structured thinking, discussions with peers, and sharing ideas with the entire class. The TGT model encourages active participation, increases student engagement, and strengthens conceptual understanding.

Therefore, the Teames Games Tournament (TGT) learning model can be considered an appropriate and effective alternative for improving science learning outcomes, particularly in elementary school settings. Future research can apply this model to different subjects and grade levels to further explore its effectiveness.

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