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The Influence of the TGT (Team Games Tournament) Type Cooperative Learning Model Assisted by Questions Box Media on Student Learning Outcomes in Science Learning

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Abstract: This research aims to determine the effect of the TGT (Time Games Tournament) type cooperative learning model assisted by Questions Box media on the science learning outcomes of Class 3 students at SD Negeri 03 Pagi, even during the semester of the 2022/2023 academic year. The sample for this research was Class III-A at SD Negeri 03 Pagi with a total of 30 students and Class III-B with a total of 30 students. The prerequisite is the normality test which obtains a normal distribution of experimental and control class data. Testing the hypothesis using the t-test obtained a value of t = 9.49, resulting in Ho being rejected at a significance level of 5% with an effect size of 1.54, including the high group. The average score for the control class was 60.50, and the experimental class average was 86.50. These findings indicate that the use of the TGT (Time Games Tournament) type cooperative learning model assisted by Questions Box media has an impact on science learning outcomes in class III of SD Negeri 03 Pagi

Keywords: Science Learning Outcomes; TGT type Cooperative Learning Model; Questions Box

Introduction

Natural science education plays an important role in science and technology. In learning Natural Sciences (IPA) in elementary schools, it is essential for natural science learning as a whole to try to learn methodically about natural events (Siahaan & Wahyuni, 2018). However, the majority of students are not interested in learning science due to the lack of space for interaction between teachers and students, and explanations of material that are less interesting, which makes children feel bored and find it difficult to understand the learning. Students usually have difficulty understanding material when studying, causing them to believe that studying natural sciences is a fairly challenging lesson, resulting in low student learning outcomes (Cherly Ana Safira et al., 2020).

Learning contains; knowledge and experience. It can be said that learning outcomes are the main point that determines the changes that students obtain after learning (Awe & Benge, 2017).

Explaining learning outcomes can have a good impact if teachers can provide new methods in providing learning (Khoerunnisa & Aqwal, 2020). In education, student learning outcomes are very helpful in assessing how well students' learning performance is in the academic environment (Yuwanita et al., 2020). Learning outcomes function as a measure of how well students achieve, understand, and master the material that the teacher has taught them (Gd Gunarta Jurusan Pendidikan Guru Sekolah Dasar, 2018). The results obtained from a learning method will determine whether a person socializes well or badly in their learning environment, based on the learning strategies that have been developed and used by the teacher (Zaifullah et al., 2021). Therefore, there is a need for professional teachers to educate and provide experience and motivation to students (Erviani et al., 2022).

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Based on the results of observations through interviews and observations in class III science learning activities at SD Negeri 03 Pagi Kapuk, West Jakarta, it was found that the science learning process there still uses the lecture method which focuses on the teacher while students do not have the freedom to carry out active learning which results in many students experiencing difficulties in learning understanding so, that it has an impact on student learning outcomes which is quite worrying, especially in the field of science. Kapuk 03 Pagi Public Elementary School, West Jakarta has set a KKM of 7.5. However, especially in the science field, several students are still below the KKM. From the results of the observations, it can be concluded that to improve student learning outcomes which are minimal in the science learning process, it is necessary to have appropriate learning strategies, one way is to use the TGT (Team Games Tournament) type cooperative learning model assisted by Question box media where students can be given freedom in Participating in learning becomes more fun, children are more active and creative with ideas that students create themselves (Oktayana Mahardika & Putra, 2020).

By creating diverse learning models, it is possible to raise educational standards and competencies. A country tries to progress in different areas of life through the education process (Azzahra & Nurrohmatul Amaliyah, 2022). The focus of this learning model is on cooperative student problem-solving activities, learning resources, and group learning. The cooperative learning approach, according to (Evi et al., 2017). "Requires modification of learning objectives from simply conveying information to constructive knowledge by individuals through group learning." according to Isjoni (2010:83) Cooperative is a learning activity that forms groups of 4-6 students.

The TGT-type cooperative learning approach activities, it is said to be unique because they end with a game or competition, which makes it very interesting. Through the use of TGT-type cooperative learning, teachers hope to be able to stimulate students' thinking to practice certain abilities, so as not to get bored and improve science learning outcomes (Nur Jannah, 2020). Natural science is an important subject because it includes material about nature and the environment that surrounds us. Science subjects cover three aspects including affective, cognitive, and psychomotor (Utami & Amaliyah, 2022).

As a professional teacher, utilizing media is an important thing that can help the process of teaching activities provide benefits to students (Maulana Arafat Lubis, 2019). It is hoped that the use of teaching media as a means of increasing student activity in learning is one solution to this problem. According to Fatria (2017), media is anything that can be used to convey ideas and generate ways to motivate student learning. And can be used to arouse student interest and excitement.

Question box media is one media that can be utilized. A questions box is a teaching tool that contains a collection of written questions with a certain system that must be answered about the information that has been conveyed (Azira, 2018). This media aims to arouse children's interest in learning and among group members to complete school assignments. One thing is that here the researcher tries to integrate learning that involves students in the learning process. Students are taught how to engage with each other to interact using the TGT-type cooperative concept with the help of media. One of them is the Questions Box media, which is a simple media made in the form of a box containing several questions that will then be given randomly to each group member.

By using a cooperative learning approach, students participate in group work with elements of play and learning (Paedagoria, 2023). (Team Games Tournament) is very effective in inviting students to analyze material in depth and can change the minds of students who think that science lessons are uninteresting, and boring so that they can improve learning outcomes and teach students how to work together.

The findings of this analysis reveal that the TGT (Team Games Tournament) type cooperative learning model assisted by Questions box media is visible in science learning outcomes. Student learning outcomes and creativity are higher through learning models that bring learning to real life in improving science learning outcomes. This research aims to determine the influence of the TGT (Team Games Tournament) type cooperative learning model assisted by Questions box media on the learning outcomes of class III students at SDN 03 Pagi Kapuk, West Jakarta.

Method

This research uses quasi-experimental research. This research has an experimental group and a control group. The TGT (Team Games Tournament) type cooperative learning model assisted by questions box media was used to provide treatment to the experimental class. Meanwhile, the control class was not given any treatment. By providing a comparison group (control), an influence is found. According to Sugiyono (2020), population is a term that refers to individuals with certain qualities and characteristics selected by researchers in sampling to obtain conclusions. The population used by class III students at SDN 03 Pagi consists of two classes, namely: Class III - A and III - B with a total of 60 students.

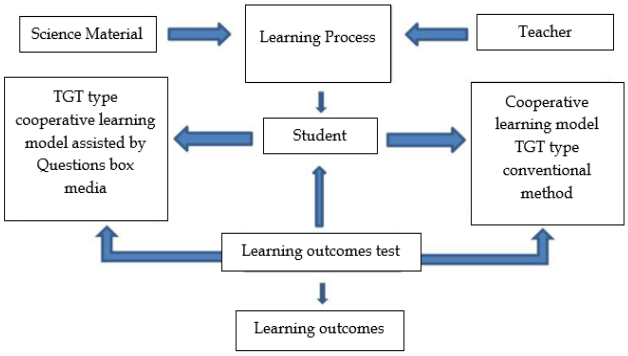

Figure 1. Thinking Framework

The assessment applied uses two classes with homogeneous criteria which can represent the characteristics of the population and help research objectives. For details, see Figure 1. The data collection method used was experimental. With 30 multiple-choice questions and one correct answer. To verify the items, a total of 30 questions were presented to students in the third grade. Based on the results obtained from the verification questions, the number of valid questions was 23. Researchers used 20 of the 23 valid questions to carry out pretests and posttests on student learning outcomes in the experimental and control classes. The purpose of testing research instruments is to gain insight into the fairness of the test instrument. Research is needed to carry out validity and reliability tests.

Table 1. Effect Size Criteria

Effect Size	Information
0.2 ≤ ES < 0,.5	Low
0.5 ≤ ES < 0.8	Medium
ES ≥ 0.8	High

The data analysis and processing method in this research is a prerequisite test for analysis by carrying out a normality test. The normality test is a prerequisite for analysis tests, and the data obtained respectively come from the experimental class and the control class. Then the homogeneity test is used to test whether the variances of the two samples are the same. This test was carried out as a prerequisite for t-test analysis with a significance level: of 0.05. And to find out how much influence the treatment given by the researcher has on the observed variables with the effect size. According to Arikunto (2018), effect size has several criteria. This can be seen in the table 1.

Result and Discussion

Based on calculations that have been carried out on student learning outcome variables (Table 2). From the results of the method obtained, the result is ES = 1.547. According to the effect size interpretation group, it can be classified as a high group. So it can be concluded that there is an influence on science learning outcomes. This research was carried out in the experimental class by providing treatment using the TGT type cooperative learning model assisted by Questions Box media, while the control class used the conventional method. During learning activities, students' abilities and skills were more visible in class III-A which was used as an experimental class, because this class was treated using a media-assisted learning model so that students were more enthusiastic about participating in learning activities.

Table 2. Calculation of Learning Outcomes

Class	Average	Standard Devition	Effect Size	Information
Experimental	86.50	16.806	1.547	High
Control	60.50			

Science Learning Outcome Variables

The following is a polygon histogram image used to describe the frequency distribution of science learning outcomes for experimental class students, shown in Figure 2. From the pre-test histogram and polygon graphs of science learning outcomes for experimental class students above, it is clear that the majority got science grades in the interval class 56- 63, as many as 7 students with a percentage of 23%. The best score is 80-87, as many as 2 students or 7%. Meanwhile, the lowest score is 40-47, with as many as 4 students or 13.

From the histogram and post-test polygon tables and graphs of science learning outcomes for experimental class students above, it is clear that the majority got science scores in the 95-99 interval class, as many as 9 students with a percentage of 30%. The best score in the same place is 95-99, with as many as 9 students or 30%. Meanwhile, the lowest score was 70-74, as many as 4 students or 13%. From the histogram and pre-test polygon tables and graphs of science learning results for control class students above, it is clear that the majority got science scores in the 54-61 interval class, as many as 8 students with a percentage of 27%. The best score is 70-777, as many as 3 students or 10%. Meanwhile, the lowest score was 30-37, with as many as 5 students or 17%.

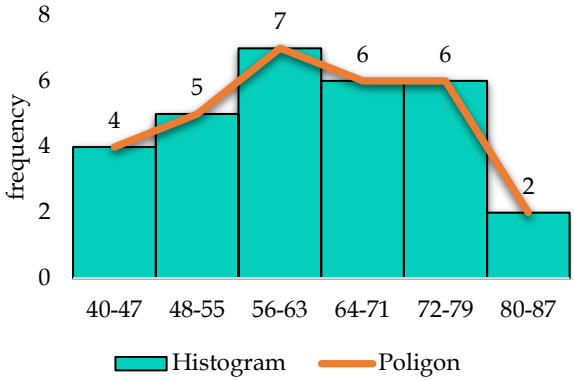

Figure 2. Histogram and Polygon Pre-test Experiment

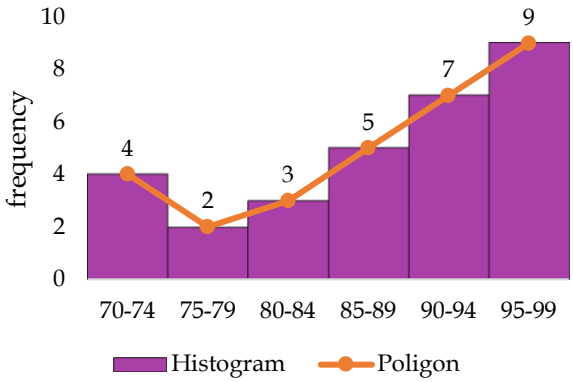

Figure 3. Experiment Post-test Histogram and Polygon

From the histogram and polygon pre-test tables and graphs of science learning outcomes for control class students above, it is clear that the majority got science scores in the 61-67 interval class, as many as 7 students with a percentage of 23%. The best score is 75-81, as many as 5 students or 17%. Meanwhile, the lowest score is 40-46, as many as 3 students or 10%.

Table 3 displays the results of the normality test between the experimental class and the control class. Next, the Levene's test was carried out as a homogeneity test and the value obtained from the results of the calculation of homogeneity significance for the experimental class was 0.16 > 0.05, indicating a homogeneous variable with a Levene statistic of 6.204, and a sig value. 0.85 > 0.05 in the control class shows a homogeneous variable with a Levene statistic of 3.062. So it can be concluded that the two classes are said to be homogeneous because the data variance for the two classes is the same.

This analytical calculation produces a t_{count} of = 9.49 at a significance level = 0.05 and t_{table} = 2.003 because $t_{count} > t_{table}$ (9.49 > 2.003), so H_0 is considered unreliable. 0.05 is the significant threshold. Rejection of H_0 shows that there is a relationship between the scientific science learning outcomes of class III students at SD Negeri 03 Pagi and the use of the TGT (Team Games Tournament) cooperative learning model assisted by Questions Box media. Based on the results of the Effect Size test used in calculating the effect test. According to the influence interpretation categorization, the ES value is high at 1.54. Therefore, it can be said that this research has a significant influence on students' scientific learning outcomes.

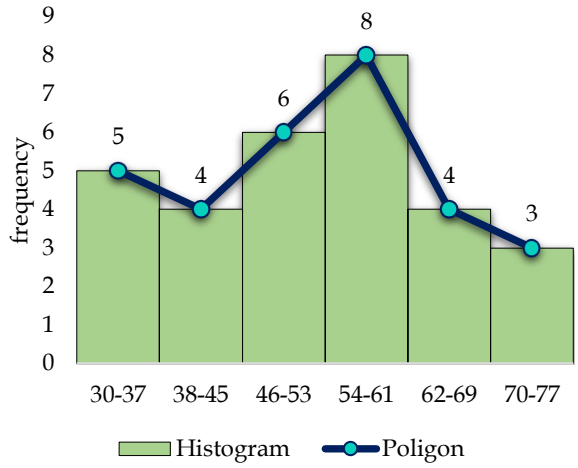

Figure 4. Histogram and Control Pre-test Polygon

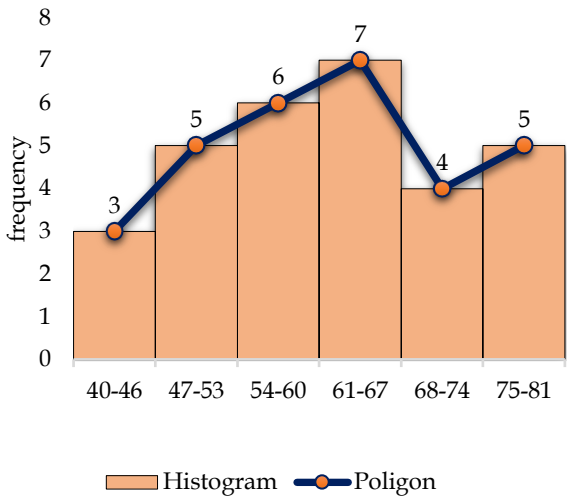

Figure 5. Histogram and Polygon Post-test control

Table 3. Normality Test Results

Learning Outcomes	Class	*Sig.*	Criteria	Information
Pre-test	Experimental	0.88	Sig. > 0.05	Normal
Post-test		0.16		
Pre-test	Control	0.77		
Post-test		0.94		

Conclusion

Based on research studies that have been carried out, it can be said that the TGT (Team Games Tournament) type cooperative learning model assisted by Questions Box media in class III science material has quite a high influence on science learning outcomes. TGT (Team Games Tournament) is a cooperative learning format that uses various methods that can be complemented by media. One of these media is Questions Box, a replacement for traditional teaching methods that encourage active participation from all group members in science learning activities.

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Authors Contribution
Luthfi Khoirunnisa as the writer also conducted research and designed the manuscript as best as possible with guidance from Nurrohmatul Amaliyah, M.Pd. as supervisor who guided so that the manuscript of this article is completed. All authors have read and approved the published version of the manuscript

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Conflicts Interest
The author declares that there is no conflict of interest regarding the publication of this article.

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